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SECTION OF OBSTETRICS AND GYNECOLOGY

MONDAY AFTERNOON, JUNE 10, 1929

THE Section of Obstetrics and Gynecology of the Massachusetts Medical Society, held in the Ballroom of the Copley-Plaza Hotel, Boston, Massachusetts, convened at two-fifty o'clock, Dr. Frederick L. Good, of Boston, the Chairman, presiding.

CHAIRMAN GOOD: Because of the necessary delay in installing a lantern, we are going to change the program slightly and have Dr. Paine read his paper first. It gives me great pleasure to introduce Dr. Alonzo K. Paine, Professor of Obstetrics, Tufts College Medical School, who will read a paper on "The Ethics of Cesarean Section." (Applause.)

THE ETHICS OF CESAREAN SECTION

BY A. K. PAINE, M.D., F.A.C.S.*

CESAREAN section is recognized as having in itself the highest maternal mortality of any delivery operation.

In Massachusetts, in 1928, four hundred and fifty-six maternal deaths were reported; in fifty-six of these deaths a cesarean had been performed—one in eight. Welz,[1] in a survey of cesarean section in Detroit, in 1926, reports a maternal mortality of thirteen per cent. Gordon,[2] for the Borough of Brooklyn, from 1921 to 1926 inclusive, gives figures which indicate a maternal mortality of something over seven per cent. Fitz-Patrick,[3] quotes Holland in the analysis of three thousand cases with a mortality varying from two to twenty-seven per cent. He also quotes Williams to the effect that cesarean mortality generally is not less than ten per cent. Reported mortality incidence is obviously subject to correction inasmuch as section is often employed as a treatment for complications in themselves productive of a high mortality; on the other hand, an accurate census of all cesareans done is not practical; specifically the small private hospital cases.

A review of the literature and an appreciation of present day obstetric practice indicates that this delivery operation with its high maternal mortality is more and more employed as a treatment for almost any complication of late pregnancy or labor, complications ranging from the rachitic dwarf to a psychosis of pregnancy, (Lewis[4]). It is apparent that an understanding of what constitutes a proper cesarean indication varies greatly in different hospitals and localities, a difference not to be explained by any fundamental difference in the character of pregnancy or labor. This variation appears strikingly in the frequently quoted Tottenham[4] figures for 1925. The Burnside Hospital in Toronto did one cesarean in every eight hundred and sixty-one deliveries, while the Jefferson Hospital in Philadelphia was doing one cesarean in every six cases delivered. The Lying-In Hospital in New York had one in every five hundred and eighty-five deliveries, the Boston Lying-In one in every twelve.

Miller,[5] reporting on cesarean section at the Hartford Hospital from 1904 to 1927, gives a general incidence of one case in thirty-seven and calls attention to another variation, this noted in the number of cesareans being done by individual staff members on private patients as compared to the number simultaneously being done on the ward patients. It appears from Miller's figures, in the service of one staff member, that one cesarean in sixty-three ward cases sufficed. At the same time he was doing one cesarean in every ten private patient deliveries.

Such a marked variation in different localities, hospitals, in the different services of the same men, even, indicates that something other than scientific obstetrics is involved in the frequent resort to cesarean section.

Various explanations are advanced for what Miller calls the "Cesarean Complex". A common one is to the effect that surgical ability is often available to deal with a difficult obstetric problem by cesarean, while a corresponding obstetric ability to meet the situation by delivery from below is not. This may represent the

*For record and address of author see "This Week's Issue," page 494.

factor in some cases but when one observes the large relative proportion of cesareans in some hospitals in which only obstetricians function, it obviously fails as a general explanation.

What constitutes a proper cesarean indication occupies a conspicuous place in the literature (Momback[6]). One sees mentioned the "absolute indication" of a former day (Moore[7]), the case in which delivery of a living child from below is absolutely impossible; the one in eight hundred and sixty-one deliveries at the Burnside Hospital perhaps represents this irreducible minimum. It is obvious that a legitimate usefulness for the operation exists beyond those narrow limits; in some hemorrhage cases for instance, the interests of both mother and child are best conserved by abdominal section.

While the conduct of a delivery subsequent to a previous cesarean is productive of considerable argument, there is no question but that this in itself is an important factor in the yearly increase in cesarean deliveries. Gordon's survey showed that twenty per cent. of the total were repeats. Weber,[8] states that a two to three per cent. rupture incidence can be anticipated in labors following a previous cesarean. There is available no method by which the rupture can be foretold. One who has witnessed this most grave of obstetric complications is justified in his reluctance to repeat the experience. Kickham,[9] in a report of such a case, expresses the opinion strongly that the future obstetric possibilities of the patient must weigh heavily in the decision for a first cesarean.

Numerous cesareans are being done for indications centering in the late toxemias of pregnancy. The correctness of this permits of argument, but there can be no argument concerning the small place cesarean has in the treatment of eclampsia; Gordon's survey shows a maternal mortality of twenty-seven and a foetal of twenty-six per cent.; the Detroit figures emphasize it with a material mortality of forty-two per cent. (Jellett,[10].)

A number of sections are being done for the assurance of a living baby, undoubtedly justifiable in certain circumstances. It should be remembered, however, that there is no so-called natural law which requires this extra jeopardy of the mother's life, assuming a possibility of successful delivery from below. Bearing on this aspect of a living child, the Detroit figures are enlightening; its infant mortality of eleven per cent. indicates the need of a revision of the popular assumption that a cesarean insures a living baby.

In the final analysis, by far the greater number of cesareans are being done for delay in labor; delay due to relative disproportion, to abnormal presentations and positions, to slow dilatation, to generally unsatisfactory labor. Of the 1805 cases in the Brooklyn survey, 1176 were done for reasons centering in this type of indication. It is at this point that the instructive value of the statistics begins to fail. We have no way of knowing how many during a corresponding period in the Borough Brooklyn, with more or less identical manifestations of dystocia, succeeded in delivering themselves or were successfully delivered by other operations. It seems to be held, however, by writers on the subject generally, that cesarean is frequently resorted to in cases in which successful delivery from below would have ultimately been possible. DeLee,[11] states that in seventy-five per cent. of the disproportion cases this successful delivery is possible. Common observation indicates that it is in these slow labors, especially when associated with delay at the brim, that most cesareans are done. It is obviously this group which furnishes the basis for the justifiable criticism of the rising tide of cesarean deliveries. In the last analysis the responsibility must be squarely assumed by those of us who do the cesareans, but as I see it, the difficulty is not primarily one of misinterpretation of indications or lack of technical skill to manage difficult deliveries from below. It involves not so much obstetric skill and judgment perhaps as it does the moral courage to insist on the best, not the easiest way. It is unfortunate but none the less true, in most questions involving right or wrong, the correct procedure is rarely the easiest. It is undoubtedly a fact, as emphasized by Newell, that many, if not most cesareans, represent the acceptance of this easiest way out of some obstetric complication. The complication of course may be a real obstetric emergency warranting cesarean, too often it is simply an unpleasant combination of circumstances. The time element enters, not as an indictment of the physician, but more that of the patient, her family, and friends. It is a national characteristic to be impatient of delay; waste of time is almost immoral. Action is desired, urged, insisted upon, and we all know that considerable effort is sometimes required to combat this demand that the doctor do something to hurry things along. We have all seen it work out; the patient is in the restless hours of the first stage, she is convinced she cannot stand it another minute, the physician is importuned to "do something"; the family, torn by its varying emotions, is anxious, impatient. The ubiquitous friend will not be ignored. Insufficient progress to this point makes delivery from below out of the question; if the physician succumbs to this urge to do something, that something of necessity becomes a cesarean. The experience of all of us teaches that this type of case is responsible in a very considerable degree for the increasing frequency of cesareans. It explains the difference in relative frequency in ward and private cases.

Another aspect of the same thing is to be seen in the group of cases in which, because of relative disproportion or some other pathology discovered, a reasonable anxiety regarding the course of labor is justified, and considerable

courage on the part of the obstetrician is required to face this anxiety, long drawn out, with perhaps the ultimate difficult instrumental delivery, and the always possible dead baby.

Kellogg,[12] states that the obstetrician is too concerned with the possible loss of a baby and not enough with the possible loss of a mother. The obstetrician has learned, however, by sad experience that a curious psychology obtains in this; he is rarely forgiven the baby lost in delivery; the death of a mother a week after a cesarean is often a mysterious manifestation of destiny.

Regional variation in cesarean frequency is another aspect of the same sort of thing. If some surgically minded obstetrician (Ely,[13]) acquires the habit of solving all labor problems with the spectacular appeal of a cesarean, other obstetricians in his community, reckoning with an impatient clientele, must follow. To the casual minded, the increased maternal death rate is sufficiently obscured and scattered as to not in itself successfully combat the unwise practice.

It becomes apparent, in this cesarean question, that something is involved beyond purely obstetric problems. The obstetrician faces a duty, a moral obligation to rise superior to expediency in his conduct of a delivery. After all, the outcome of a slow and difficult labor will be readily accepted by the average family if it understands that the alternative cesarean carries with it a definite one chance in ten of a dead mother. It is questionable if the obstetrician has not a moral obligation to impart this information in every contemplated cesarean; if he did it is reasonable to wonder if the problem of unjustifiable cesarean frequency would not solve itself. Legitimate cesarean indications are obvious: those cases in which immediate delivery offers a chance of saving mother or baby; those cases in which the existence of a definite pathology makes successful delivery from below impossible, and last, the large and important group in which relative disproportions and dystocias generally, *after an adequate test of labor*, demonstrate themselves incapable of successful delivery.

Clinical experience has shown, of course, the increased danger of sepsis in direct ratio to the prolongation of labor; cultural investigation of the vagina and lower segment by Harris, Brown, and others,[14] explains this clinical experience. This fact has functioned to favor section in disproportion cases before the onset of labor, with a consequent increase in the number of cesareans performed. Cesarean mortality is obviously to be kept low by performing the minimum number good obstetrics requires, not by sectioning all questionable cases before the onset of labor. In the border line case an adequate test of labor is imperative; it carries undoubtedly a greater risk to the case eventually requiring section, but the many cases which will escape cesarean will justify the procedure. The definitely decreased mortality from peritonitis, as demonstrated by Phaneuf,[15] and other advocates of the low operation, has become a most important factor in permitting this adequate test of labor (Danforth,[16]). Classical section has a small place in present day obstetrics, none at all in those test of labor cases.

What constitutes an adequate test of labor? The indecision of early labor, especially in primiparae makes its measurement in hours valueless; the frequency of pains is likewise subject to too much variation as far as results are concerned, to make it a dependable guide. Dilatation of the cervix is a dependable indication of labor progress. How much dilatation is required to indicate an adequate test of labor? Too many cases are seen in which the head does not enter the pelvis until after full dilatation has occurred, to ignore it as the deciding factor in such cases. In a border line case one cannot say that the head will not enter the pelvis until it has not done so after full dilatation. A cesarean done before full dilatation in such a case may easily represent unjustifiable surgery.

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CHAIRMAN GOOD: I take pleasure in calling on Dr. Franklin S. Newell, Professor of Obstetrics at Harvard University Medical School, to open the discussion of Dr. Paine's very excellent paper. Dr. Newell! (Applause.)

DISCUSSION

DR. FRANKLIN S. NEWELL, F.A.C.S., Boston: *Mr. Chairman and Members*—I am very much interested in Dr. Paine's paper because it brings before us a very serious condition which exists in our midst. I do not think, however, that you can decide on the proper treatment of given cases, obstetric or surgical, by statistics, because you can prove almost anything by statistics.

A number of years ago it was my misfortune to be reading papers in various parts of Massachusetts, and I remember statistics on Cesarean which I acquired from the local profession in four different communities. In one, one of my hearers asked after the paper why the Cesarean mortality ran from sixty to sixty-five per cent. in that city. I asked, "What sort of cases do you choose for the operation?"

His answer was, "The last patient upon whom I operated had been two days in labor and we had tried forceps three times. She eventually got well, but the baby had a fractured skull and was lost."

It was almost a misfortune for that community that the patient got well.

Another community had a history of never having had a patient recover after Cesarean. In another community it was said that when the indications had been furnished by the local men, after a test of labor and operation had been performed by a local surgeon, no patient had ever recovered. In the fourth community, the mortality ran from thirty to thirty-five per cent. Conditions such as these furnish definite proof that Cesarean Section is either performed too frequently or on improperly selected cases, or both.

This does not mean Cesarean is a bad operation, but that it is often misapplied, while on the other hand, plain indications which call for it are neglected. As I see it, Cesarean section is done too often. It is often the easiest but most dangerous way out of an unfortunate situation. Any man with any surgical technic can do a Cesarean and the operation will be creditably performed. The end result may not be good, but the ease of the operation is one of the great factors in making it popular from the doctor's standpoint.

Another predisposing factor lies in the fact that a large proportion of the obstetrics is done by men who have not had adequate training in, we will say, the care of prolonged labor, with the possibly difficult operative procedures necessary for its completion. Cesarean is often chosen as the easiest way out, whereas some other method of delivery would often be distinctly safer and therefore better.

Another great cause for so high a Cesarean mortality is lack of study of the patient before she goes into labor and the determination in advance of what method offers her the best chance for a successful delivery.

The mortality of Cesarean section is quoted by Dr. Paine from various observers as being from ten to thirty per cent. We will admit Cesarean has a certain mortality that we cannot prevent. There is always a channel for infection from the vagina to the fresh wound in the uterus which is going to give us a certain number of uterine infections followed by peritonitis, and we are going to have a higher mortality than in other clean surgical cases for this reason. Therefore, the operation can never be classed as absolutely safe, but the risk of the so-called elective operation, done on a patient who has been so studied before she goes into labor, that the necessity or the advisability of the operation has been determined before labor, so that the operation is done while she is in good condition without any question of infection, is relatively slight. If we study the mortality in these cases, we find that it is under two per cent. and not from ten to thirty per cent. as it is when we take all cases of Cesarean as they are done throughout the country.

If we should study the results in the same type of case allowed to go through labor and delivered at the end after a long labor by high forceps or version or craniotomy, we would find the answer to one of Dr. Mongan's problems. Why do we have so much sepsis? We should undoubtedly find a higher mortality from sepsis in this type of case than we get with Cesarean section in clean cases. The late case delivered by a difficult operation, done after many vaginal examinations, is a poor risk for delivery in any way. Many of these cases are subjected to Cesarean, however, with a very high mortality. If Cesarean is done on such cases, the uterus should be removed. Hysterectomy would be very much safer than even the low operation, but Cesarean is a poor operation in those cases, even with a living baby, and craniotomy gives distinctly better results for the mother than Cesarean, which is the operation usually chosen.

There are several causes for the high mortality in Cesarean section: First, we will say a disregard for the contraindications to the operation which means that in the presence of actual or probable sepsis the operation is undertaken. In the first place, frequent vaginal examinations to find out what is going on are a very common cause of infection and Cesarean done after many vaginal examinations is a dangerous operation.

In the second place, if the membranes have been ruptured for more than a very few hours, we will say six, at the outside, there is always invasion of the lower uterine segment by bac-

teria and the danger of Cesarean is greatly increased.

In the third place, if an attempt is made at vaginal operation before Cesarean is resorted to, the mortality from Cesarean section is going to be very high. The time to do a Cesarean is as early in labor as you can make up your mind that you are going to confer a sufficient benefit on your patient to compensate for a possible slight increase in the danger of the method of delivery.

Another cause of mortality is postpartum hemorrhage. There are a good many cases who bleed after delivery and we have a concealed hemorrhage which is not discovered in some cases until it is too late to save the patient. The patients are operated on and put to bed as any other surgical case, but the uterus is not watched closely and a certain proportion of our mortality is due to postpartum hemorrhage.

A very important factor in the frequency of Cesarean section, as well as in the high mortality, lies in the fact that many of our more important indications for Cesarean are complications of pregnancy, and the operation is performed on seriously sick patients, and not for disproportion between the child and the pelvis with the mother in good health. For instance, a patient who is either suffering from or has recently suffered from a decompensated heart lesion is a poor risk for delivery in any way. There is an irreducible mortality in such cases even if Cesarean section is performed, but there is a greater mortality if she is delivered through the pelvis, and we must accept that Cesarean mortality as part of our misfortune.

Late toxemias and chronic nephritis, again, may be better delivered by Cesarean if delivery is urgent and the soft parts are rigid, but the results will be only relatively good, and a mortality must be expected. It is impossible to follow a routine in such cases. Each case must be studied as an individual and the course followed which seems to promise the best results for both patients.

If the child is viable, the mortality for the child will be much lower if the patient is delivered by the abdominal route. The mortality for the mother will not be higher if we select our cases carefully, than if labor is induced.

Placenta previa, with hemorrhage, is a complication in which we have a ten to twenty-five per cent. mortality for the mother in pelvic methods of delivery. We are going to have a certain percentage of mortality following Cesarean section, but we are not going to lose as many patients on the whole, unless the mother is exsanguinated or has been infected by previous examinations, as if we deliver from below. On the other hand, we are going to save some more babies though not so many as is often claimed because in fifty per cent. of the cases of complete placenta previa, the baby is nonviable, but we are going to save a few more babies if we deliver the patients in the last two months of Cesarean section, only we must pick our cases carefully or we will lose more mothers.

Toxic separation of the normally situated placenta is another indication for which we do Cesarean for the sake of the mother, without regard to the baby. If our patient is thoroughly toxic, she is going to die no matter how we deliver her, but in the less severe cases we have found if we deliver a patient from below and the uterus has been disintegrated by the hemorrhage taking place into its tissues, we are going to lose her from postpartum hemorrhage, whereas, if we deliver her from above, we may save her by taking out the uterus. Therefore, we choose Cesarean section not as an ideal method, but as, on the whole, the safest.

All of these complications add to our Cesarean mortality but it is the complication which causes the death and not the method of delivery in the majority of cases.

In eclampsia, there is only one possible indication for Cesarean section, in my opinion, and that is in a patient who has already started in labor who has an absolute Cesarean indication. Eclampsia causes a very high mortality when Cesarean section is performed, somewhere, according to different figures, from twenty-five to forty per cent. If we neglect our eclampsias absolutely and do not treat them at all, we shall do better than that, but we may occasionally have to do a Cesarean section in eclampsia.

Now the proper criterion on which Cesarean section should be undertaken is some actual benefit which can be conferred on the mother which warrants the slightly increased risk of operation in clean cases or the greatly increased risk in doubtful cases. There must be a very definite benefit either in statistics of mortality for mother or child or in health preservation to warrant operation. The life of the child must be considered as being worth some risk to the mother. We cannot say to a patient that we will throw away the child by giving her a prolonged test of labor when the outcome is seriously doubtful, and yet the majority of doubtful risks can be successfully delivered through the pelvis if labor is satisfactory. In a woman who is over forty, with her first child, we believe that that child is important enough to warrant a primary Cesarean, although she might have a child normally without any great difficulty.

There is another reason for abdominal delivery which is not generally considered, but which those of us who do much gynecology appreciate; that is the injury to the patient by delivery from below by operative means, whether by high forceps or by version, after a long labor. Most of us who do any surgery operate very frequently for prolapse, due to damage of the uterine supports. These patients must either run the risk of a recurrence of the prolapse in subsequent pregnancies, be delivered by Cesarean or be sterilized at the time of operation. The

primary prolapse can in many cases be avoided by a more intelligent choice of the method of delivery employed in the first labor.

It is impossible to determine in advance just what the pelvic damage is going to be, but there are many women who are leading a life of semi-invalidism because they were delivered from below when as a matter of fact they would have been very much better off if they had been delivered through the abdomen, even at the expense of some slight increase in immediate risk. It is impossible, I believe, however, to choose these patients accurately.

The statistics of the frequency of Cesarean section interest me a good deal, because as Chief of the Staff of the Lying-In Hospital, I am interested when the hospital is held up to scorn, because we are said to do one Cesarean to twelve patients. In the year 1925, which was the year Dr. Tottenham took our figures, that was the ratio on patients delivered in the hospital. Approximately an equal number of patients were delivered in the out-patient department who contributed to the hospital Cesareans done, which would raise our operative incidence to something like one in twenty-four or twenty-five. In addition, twenty-five per cent. of our operations were repeat Cesareans. We believe very strongly if a patient has once had a Cesarean, she had better have another one in subsequent pregnancies.

Only one-half of the twenty-five per cent. repeat Cesareans were our own cases; the others came to us from other institutions where Cesarean had been previously performed.

In severe chronic nephritis, we perform Cesarean very commonly, because we believe in sterilizing the patient and preventing her from ever being exposed to the same dangers in the future. The same may be said of heart conditions, and also of serious toxemia of pregnancy with rigid cervix and a viable child, when we believe delivery is imperative.

Our incidence of operation will come pretty nearly, as far as disproportion between the child and the pelvis is the indication, to one in seventy-five, rather than one in twelve, which it is imputed to be.

Taking all of our Cesareans in the last five years, there have been a good many included in our mortality with serious complications, e. g., with cardiac decompensation, etc., the patient being moribund on admission and Cesarean the only possible method of delivery before the death of both mother and child. Our mortality is under five per cent. and not between ten and twenty-five per cent., and this is a gross, not a corrected mortality. (Applause.)

CHAIRMAN GOOD: I take great pleasure in introducing Dr. Louis E. Phaneuf, Professor of Gynecology, at Tufts College Medical School, who will now discuss Dr. Paine's paper. Dr. Phaneuf! (Applause.)

LOUIS E. PHANEUF, M.D., F.A.C.S., Boston, Mass.: Dr. Paine should be congratulated on his timely and excellent paper. I heartily agree with him in what he has presented and will spend the time at my disposal emphasizing some of the points which he has made.

There is no question that the tendency of the last few years has been to increase rather than limit the indications of Cesarean section. It is hoped, however, that with the constant improvement in obstetric teaching, the profession will realize that cesarean section is not a panacea for all obstetric ills, and that the more difficult methods of delivery through the birth canal are attended with greater safety.

C. Jeff Miller, (*Surgery, Gynecology and Obstetrics*, Chicago, 1929, xlviii, 6, 745-750), quoting figures from 16 authors reports a maternal mortality ranging from 0 per cent. in small series to 33 per cent. The mortality from hemorrhage has been largely controlled; the mortality from peritonitis has been greatly improved by the low or cervical cesarean section; but the mortality by infection from the cervix through the rich supply of lymphatics, resulting in puerperal septicemia will occur after any form of cesarean as it will after any form of delivery from below.

The high incidence of peritonitis after the classical operation is due to the fact that no suture line in the uterine corpus can be made water-tight and that bacteria, therefore, readily find their way to the unprotected peritoneal cavity. The low incidence of peritonitis in the lower segment operations, on the other hand, is due to the fact that the uterine incision is subperitoneal, sealed over by the bladder peritoneum thereby protecting the abdominal cavity from infection.

The infant mortality quoted by Dr. Paine as 11 per cent., in Detroit figures, tends to show that the interest of the child is not entirely safeguarded by this procedure.

By far the largest group of cases in which cesarean section is done is the so-called disproportion group. C. Jeff Miller quotes the incidence of spontaneous delivery in pelvic contraction as follows:

Series	Number cases	Percentage spontaneous deliveries
Montreal Maternity	1462	75.5
Schauta	3116	77.8
Williams	2975	78.0

Trial labor in disproportion cases, according to these figures, will result in delivery from below in about 75 per cent. of the cases. The fear of peritonitis in the classical operation and the proved fact that it is most safely done before the onset of labor results in many unnecessary operations. On the other hand, the increased safety of the low or cervical operation allows these women to have an adequate trial labor and

a large number of them are delivered through the pelvis.

Rupture of the scar is generally reported as about 3 per cent. following the classical operation, although in some series it runs much higher than this. Wetterwald in a review of the literature of the world collected 3600 cervical cesarean sections with an incidence of rupture of 0.003 per cent. In my own series of 349 cervical cesarean sections of which 223 were performed with a longitudinal incision in the cervix and 126 with a transverse incision, no ruptures thus far have been observed. Last week, I did a vaginal hysterectomy for uterine bleeding on a woman 38 years old who had had a low cesarean with a longitudinal cervical incision four years previously. The naked eye could not discover the cervical scar. Dr. F. B. Mallory is now making a histological study of this cervix and I hope to report the results at a later date.

In closing, I would like to emphasize Dr. Paine's words, "Classical section has a small place in present day obstetrics, none at all in those test of labor cases."

CHAIRMAN GOOD: On account of illness, Dr. John M. Gilchrist, of Springfield, is unable to be at this meeting.

CHAIRMAN GOOD: I take pleasure in calling on Dr. Grace E. Rochford, of Tufts College Medical School and the New England Hospital for Women and Children, to discuss this paper. Dr. Rochford! (Applause.)

DR. GRACE E. ROCHFORD, F.A.C.S., Boston: *Members of the Society*—I think that the thing which interested me to the greatest extent in Dr. Paine's most interesting and instructive paper is his statement that most obstetricians find themselves compelled to consider other reasons than definite obstetrical indications in deciding whether a case shall or shall not have a Cesarean section done and that this explains the greater frequency of Cesarean sections in private patients than in ward cases. I had not fully realized that there was this greater frequency which Dr. Paine maintains. Then I remembered that there was available a most unique group of statistics which would either refute or prove his statement.

At the New England Hospital for Women and Children, until the year 1923, the obstetrical department was controlled by a very small group of obstetricians. The wards ran pretty much to capacity, so much so that the service was, and is, a very exacting one. Because of the extremely small group of obstetricians, the private rooms were necessarily not filled. In the latter part of 1923, the private wards were opened to a representative group of obstetricians which necessarily brought about a sudden and fairly large increase in the number of private patients coming to the hospital. It is the statistics brought about by this event which I found interesting and illuminating.

In the year 1922, the last year under the old conditions, there were at the hospital 641 ward patients and 209 private patients. Thirteen Cesareans were performed; that is, one Cesarean to sixty-seven deliveries. This had been about the average for several years previous.

In 1926, after three years of the increase in the number of obstetricians bringing private patients in, there were 427 private cases and 674 ward cases, with 41 Cesareans, or one in twenty-seven deliveries, as compared to one in sixty-seven of three years previous.

In 1928, after five years of the new régime, there were 609 private patients and 772 ward cases, with 80 Cesareans, or one in seventeen deliveries. In other words, in 1928, we had exactly 400 more private patients than in 1922, and only 101 more ward cases, but we had one Cesarean to seventeen deliveries as compared to one Cesarean in sixty-seven deliveries in 1922. (Applause.)

CHAIRMAN GOOD: Dr. Paine's paper is now open for discussion. Will anyone who wishes to discuss the paper please come up to the front of the hall and talk into the microphone? I know there must be some here who would like to express themselves on this very important subject.

Since there is nothing further, Dr. Paine will now close the discussion.

DR. ALONZO K. PAINE: I think I have nothing to add, Mr. Chairman, except to express my appreciation to Dr. Newell and the other members who have so ably brought out some of the points in this question. (Applause.)

CHAIRMAN GOOD: The delay in getting the lantern necessitates another change in the program. We will now listen to Dr. Charles J. Kickham, Senior Visiting Obstetrician at St. Elizabeth's Hospital, who will read a paper on "The Treatment of Puerperal Septicemia." Dr. Kickham! (Applause.)

TREATMENT OF PUERPERAL SEPSIS

BY CHARLES J. KICKHAM, M.D., F.A.C.S.*

IN the consideration of the treatment of puerperal sepsis one is immediately struck with the multiplicity of views and the lack of unanimity, as to the value of any particular type of procedure.

Eminent observers and innumerable clinics, have studied the question intensively and proposed various methods of treatment but nowhere

*For record and address of author see "This Week's Issue," page 494.

has a definite form of treatment been developed that has attained universal application and which results in such a large measure of success that one might be enthusiastic over it.

In this paper, as the heading proclaims, our attention will be confined to the treatment of this condition, and etiology, symptoms, etc. will only be mentioned when necessary to make clear some point in treatment. From the many reports of foreign and home clinics, fortified by his personal observation, the writer hopes to bring forward today, a clear résumé of the subject of treatment of puerperal sepsis.

There is agreement, in the main, that the vulva and vagina of a pregnant woman harbor many forms of infective organisms, including the streptococci, though these germs are of low virulence or at least not infective for the host under normal circumstances. But in all deliveries, there is some solution of the continuity of tissues in the genital tract, together with a large open wound at the placental site, thus the main form of treatment must be in the realm of preventive rather than curative medicine.

V. Bonney[1] says, "the ideal is killing of all these germs but that is impossible—each case must be treated as an operative case with strictest asepsis." This is in line with the fundamental teaching of DeLee, Findley and others and agreed upon as basic by all who have given the subject of sepsis any consideration. With this in view, aseptic surgical technique must be carried out in every detail, in so far as this is possible in the individual delivery and this can only be accomplished when the profession and the public treat obstetrics as on the same plane of importance as an abdominal surgical operation. Findley[2] in a trenchant article, well worth reading in its entirety, stresses the above and also the duty of the medical schools to provide adequate practical instruction and teaching to the students, that this end may be attained.

The use of gloves, sterile gowns, caps, masks, draperies and sterilization of instruments and careful preparation of patient are essentials that must be insisted upon in any maternity hospital. In the home delivery this ideal technique should be approached as near as possible. The use of vulval and vaginal germicides before and after delivery is now common and I believe that careful scrubbing of external genitals and inner thigh regions with soap and water, followed by cleansing solution of sterile water, using gentle manipulation, with soft sterile gauze or cotton, should precede the chemical bath, be that Iodine, Mercurochrome or Picric Acid. The practice of instilling mercurochome into the vagina at intervals during labor is used in some clinics with success. Before any vaginal manipulation, it is the writer's practice, to instill or wipe out the vagina with mercurochrome on the theory that the germicidal action will inhibit, if not actually kill, the organisms in this region. As said above, these organisms are not infective for the host under normal circumstances but all will agree that they are potential sparks, just waiting for the proper culture media of fresh blood clot and the stimulation of trauma, with the ability to migrate into the uterus a few hours after rupture of the membranes and thus come into contact with lacerated areas of the upper genital tract and the raw placental site, not to say those that may be massaged into these areas, by manipulation during forceps or other intrauterine operations.

Ectogenous infections should be prevented by these aseptic precautions but in a certain number of cases creep in, despite our technique and one source of introduction that is not common to consider, is, that germs may be introduced by sexual intercourse in the days just prior to actual labor. This fact may account for some cases of sepsis that occur where no examinations have been made and the delivery carried out under excellent conditions. In this latter statement I do not mean an acute gonorrheal infection, which is usually not fatal, but obscure, serious postpartum sepsis from other organisms.

Endogenous infections may arise from some remote focus, such as the teeth, tonsils or sinus disease. We also find that sepsis is more prevalent in the seasons when respiratory infections are common. Neither can we ignore the fact that sepsis seems at times to come in waves. This brings us to the importance of the consideration of the whole body and habits of the pregnant woman, prior to labor, in the prevention of sepsis.

Careful and frequent prenatal observation has been the advice of Langhorst,[3] with a search for and elimination of foci of infection. He also points out the importance of keeping to its highest point of efficiency the whole body economy and blood strength, so that under the strain of labor and succeeding days, that the full germicidal and resistive power of the maternal body be at its maximum and thus minimize or prevent, the action of organisms, whether locally or at a distance from the pelvis. This same principle of intensive prenatal supervision, to the end that every pregnant patient enter labor with as few disabilities as possible and the greatest assets, has impressed most observers and is of vital importance in the preventive treatment.

In prophylaxis Watson[4] brings forward an important point when he says that during the third stage of labor the cervix must not be pushed down to or through the vulva, in which case it is liable to gross contamination and then be a source of possible infection when it recedes to its natural position. If this contamination should take place, in a given case, it is well to paint the exposed cervix with some germicide.

As important as any one factor in prophy-

laxis is the protection of the patient against contamination by a "carrier" amongst the delivery room or maternity ward attendants, (this includes medical men). This latter fact was brought most forcibly to our attention by the epidemic of sepsis at Sloan Hospital where 9 patients died as result of streptococcus septicemia. (May I say that the staff at Sloan should be commended for their masterly reports and courageous stand, in giving forth to the medical world the results of a tragic happening, that obstetrics the world over might profit.) The only possible source found was positive cultures from noses and throats of certain members of the staff and thus probably direct contamination. To prevent such, the use of masks in the obstetrical department is stressed and Watson again points out that masking will prevent the fine spray from nose or throat, contaminating gloves that are assumed to be sterile and thus, during examinations or operations, carrying germs directly into the uterus.

One writer[6] advocates and I feel it is good advice, that in the interest of the patient, that all operating or ward attendants, medical and nursing, should have inspection, with cultures of nose and throat taken at regular intervals by the laboratory service, as a regular part of the hospital routine.

In the postpartum period cross contamination by the use of bed pans should be watched and also careful supervision of nursing service during this period.

Prevention of spread of infection in maternity wards, especially during periods when more than the usual amount of morbidity seems to prevail required that all patients running a temperature or with foul lochia be segregrated. This is difficult under most circumstances but the ideal would be to have an isolation building or ward, where suspicious cases could be under observation and away from "clean" cases. This brings up the whole question of obstetrics in relation to home, general hospital and special maternity hospital, which is too broad to discuss in this paper.

Patients in the postpartum period must be instructed not to contaminate themselves by fingers which may have been in contact with nose or mouth secretions. In some hospitals the use of vulval pads have been discontinued because it was felt they "backed" up the lochia and thus were fruitful sources of infection. This latter plan we tried in our clinic but were obliged to give it up, because the patients were using towels and face cloths or pulling the sheets up between their thighs to prevent the "leaking" over the buttocks.

After infection takes place then we must institute active treatment. In the mild case which becomes localized in the lower genital tract and is characterized by foul lochia, raising the head of bed or letting patient sit up, will help promote drainage and local instillations of a germicide, such as mercurochrome, may help much. In those cases where retained secundines is suspected there is some difference of opinion as to treatment. Some advocate removal of these tissues but the majority of men feel that the least possible intrauterine manipulation the better. Williams[6] is strongly of the opinion that any attempt at removal of intrauterine tissues or the giving of intrauterine douches is pernicious but on the other hand our Dr. F. L. Good has had excellent results, some of which the writer has observed, by the early administration of 35% alcohol douche. There is always a very grave doubt as to retention of secundines and the writer has always felt, that in a given case, if a patient shows any real systemic symptoms that the organisms have already penetrated below the surface and thus would not be reached by any superficial application. McPherson[7] writes against douching on the principle of lack of efficiency and at the same time danger of carrying infection higher in the tract.

J. N. D. Smith[8] writes that most of these infections are localized intrauterine, with retention of small pieces of membranes or clots, with the temperature due to absorption of toxin but no bacteremia and that these fragments tend to liquify and be discharged if drainage is good. To promote drainage and stimulate flow of lymph A. R. Hobbs[9] suggests intrauterine instillation of glycerine. When the infection is localized in the pelvis with cellulitis, the least possible manipulation the better. In the early stages ice bags help to control the condition and later hot flaxseed poultices, with hot vaginal douches will help in hurrying resolution, or promote pus formation where it is obvious that a pus pocket is forming. Milk injections after the protein therapy advocated by Gellhorn,[10] using Aolan in either 10 or 20 c.c. doses has been used in our clinic with good results. Watchful waiting with rest, good food and sunshine will do much to tide these patients over the acute stage. When actual suppuration takes place it usually points into the cul-de-sacs and can be drained by vaginal puncture. Abdominal section in this type of case is dangerous and should only be done after careful thought. In the sub-acute pelvic exudates, the writer has been amazed at the size of pelvic masses that have absorbed under conservative treatment but this treatment must be persisted in for a long time in a number of cases.

It is the severe type of infection regarding which we are most at sea and which we will consider in detail.

In the severe type we get intense intoxication with or without bacteremia, though the latter is usually present at some stage, if cultures are taken carefully and frequently, even daily. While any of the various organisms may be etiological factors in a given case, the most to be feared is some type of streptococci. Positive cultures will help to differentiate the type of

infection and also help, to some extent, in the determination of prognosis.

Anti-streptococcus serum has been used widely, with most varied results. C. Bernard[11] reports its use in 35 cases of generalized puerperal infection with 37.8% cures. Armstrong and Shaw[12] reporting in December 1928 came to the conclusion that streptococcus vaccines were of little or no value. Harmorek[13] and others showed that vaccines with microbes killed by heat, were of little value, except in large doses. Vaccines of attenuated virulence are more successful but then only in doses of 20 mg. per Kg. of body weight. Joettin and Kelewitsch[13] working independently found results unsatisfactory in the reduction of morbidity. In some clinics the giving of streptococcus sera as a prophylactic has been suggested and used, but again this has not proven of great value. In this connection it was found that there was a period or phase between doses in which the patient was apparently more susceptible to infection than usual. Theoretically we should be able to raise the resistance of patients to infection and in a letter from Dr. F. L. Adair[14] he informs me that they are working on this principle but it is too early to report results. At the Carney Hospital they are using Parke Davis sera in suspected cases but here again it is too early to report results, though we all trust both Dr. Adair and Dr. Phaneuf will have a large measure of success. Of late some good results have been reported from the use of autovaccines applied locally in the uterus after the idea of Besredkas. This treatment consists of applying bouillon vaccines soaked on tampons directly into the uterus. Anderedus and Balard[15] used monovalent or polyvalent bouillon vaccines soaked on strips and packed into the uterus immediately following delivery as a prophylactic or later as a curative agent if infection has started. Used as a curative agent in 15 cases they claimed 11 good results. Ascherman & Rosenblum[16] treated 6 cases with this principle and 5 recovered. As far as I have been able to ascertain, the use of sera and vaccines in the treatment of sepsis is still in the experimental stage and while here and there we get good reports, in the main, results have been unsatisfactory, though this type of treatment is worthy of a fair trial in any case.

Riviere[17] reporting in 1925 brought forward the use of arsenical salts in the treatment of puerperal sepsis. His work was first done with intravenous injections using novarsenobenzol and he reports that from January 1, 1924 to May 1, 1925 he treated 56 cases with no deaths while in the year previous they had 5 deaths. He gave treatment in the beginning of the condition and ascribes his good results to early treatment, thus aborting into mild cases potentially serious infections. Marlous and M. Joanny were quoted in the same article as getting similar good results, though working independently of Riviere. While at first the arsenical salts were administered intravenously, they later supplanted this method by injection of sulfarsenol intramuscularly with equally good results and less danger to the patient. The theory in the use of these salts is that arsenic is a germicide and also a blood tonic and thus we get two effects of inhibition and building up of blood defences. Again comes the question of possible syphilitic taint in some cases of sepsis and thus the well known medicinal effect of arsenic. This type of treatment has not been used to any great extent in our domestic clinics, though DeLee does mention its use, but I grasp that he is not impressed by it.

When mercurochrome was first brought out by the men at Hopkins and such good primary reports received as to its value as an intravenous germicide we were all thrilled and hoped we had at last reached firm ground in the treatment of this type of sepsis, but as time went on reports filtered back from various clinics as to its failure in specific cases and again we had to face disappointing results. Argoflavin, Rivanaol, Argochrom, Trypflavin, etc. have been given clinical trials and were reported by Heptner[18] in 1925 as being favorable but as time has gone on, consensus of opinion in this country is, that this type of treatment has not shown good results in the severe cases.

In the reports of the post-mortem examinations of the Sloan epidemic it was shown that in 5 of the fatal cases, there was a direct lymphatic spread through the uterine wall, cellular tissue and serous surface, with no thrombophlebitis of the pelvic veins and where bacteremia was present, it was late in the disease and apparently came through the Thoracic Duct. This brings us to the possibility of treating serious puerperal sepsis by opening and drainage of the thoracic duct in the neck as first advocated by Costain of Toronto. A few cases of Lymphaticostomy have been done on the human but it has been felt that draining the whole lymphatic system by this method was too drastic but with the above findings we may, in the future give more consideration to this thoracic duct drainage. This mention of surgery opens up the whole question of surgical intervention. Ligation of pelvic veins, the vena cava and hysterectomy have all been advocated and done, with some success but in the main with a high primary mortality and in general condemned because of radical tone it injects into the treatment of the condition. Theoretically the prevention of the dissemination into the general circulation of the products of local infection or the removal of the focus of infection, should give good grounds for surgical intervention. But from a practical point, it is impossible to tell how far the infection has spread and how much resistance the individual patient has to stand a mutilating surgical operation. Further it is impossible to judge which case might get

well by conservative treatment. Too hurried a resort to surgery would probably increase mortality, because cases would not be chosen with proper care and thus the opponents of surgery have firm ground for their opposition. With these facts acknowledged and I hope appreciated, the writer still feels that in a certain number of cases, surgery with removal of uterus, will save a percentage of patients. He bases this opinion on cases which have come under his direction where they did not have a fulminating infection that kills in a few days and in which no treatment seems to be of value but where they went along for ten days or more with gradual weakening and ultimate death, despite general stimulative measures. His deductions were, that in this type of case, the removal of the large focus of infection would prevent further ingestion into the general circulation of toxin or bacteria and allow the forces of nature, that were already battling the disease to overcome the amount of toxin or bacteria that was already in the system. These combative forces of nature to be stimulated and augmented by every possible help, such as food, sunlight and blood transfusions. On the other hand if nature is allowed to send toxin or bacteria constantly into the systemic body from this pelvic focus, the natural resistive powers will succumb under the repeated onslaughts, despite our combative efforts in other ways.

I have reserved for the last part of my paper the one type of treatment that seems to have universal accord and respect and that is the use of blood in some form. It has been shown that changes occur in the blood of a pregnant woman that lower her resistance and on the other hand that there is an increase in leucocytosis and that there is an anemia that is so common as to be almost normal in pregnancy and puerperium. That given an infection no matter how slight or how far removed from the pelvis in the pregnant woman this infection has more than the usual systemic effect and tends to persist longer than in the non-pregnant. Thus the vital blood stream of the mother and its associated organs must be in good condition and helped if necessary. As one writer[19] puts it, "The competence, reserve power or margin of safety of an individual, is the collective reserve power of the component cells. This reserve, in turn, measures the capacity of the defensive mechanism of that individual. In the graver forms of post-partum infection, the reserve power therefore resistance . . . is greatly reduced, at times exhausted. Competence is determined by the ability of the organism to deliver oxygen, water and food to the individual cells. Oxygen, water and food are delivered only by the blood and delivery varies directly with the quality and quantity of blood and efficiency of the cardiovascular system". Going on he states that clinically we get myocardial disturbance and anemia in sepsis and that blood transfusions with whole blood and with careful selection of donor, will save lives and shorten convalescence. This addition of fresh blood has been advocated by many men, such as DeLee, Polack, McPherson, Adair, Findley, etc. The theory is that by transfusion we replace low resistant blood with fresh material and that this fresh blood allows regeneration of the failing powers of the host and also has some bactericidal effect. Findley suggests increasing the antibodies by stimulation of the donors' blood by injection of anti-streptococcus serum a few hours before withdrawal. The use of small repeated transfusions is most common practice but some use one large dose. Some use whole blood and others use citrated but the exact method or type of blood is probably not so important as the careful selection of donors and the use of this form of treatment early and often, as the case progresses. To be of real value it must not be reserved for the last stand in a hopeless case.

To recapitulate the whole question of treatment of puerperal sepsis, one must first grasp that the etiological factors in any case or group of cases, differ. That there is some elusive, unknown quantity that allows two apparently healthy women to react differently to the strain of labor. That certain patients, in poor physical condition, subjected to difficult operative delivery under adverse circumstances will show no reaction and others, under ideal conditions, even without examinations, will go septic.

These factors are not simple, but involve the whole body economy, chemical biological and metabolic, of the pregnant patient and thus in treatment it is the general agreement that prophylaxis is better than active treatment, and to attain this end, we must consider the whole system of the patient and the entire time from conception to discharge after delivery, as a whole. To prevent infection the body must be fortified by constant prenatal supervision and thus elimination of any defects such as foci or infection. At the same time measures taken to build up the maternal forces to their highest point of efficiency. General propaganda disseminated amongst the lay people to the end that they must come to realize that obstetrics is a problem of the same importance as a surgical condition and thus conform to all the advice of the medical attendant. Amongst physicians it should be recognized that they must insist on adequate prenatal supervision and take all aseptic precautions possible in maternity work and thereby reduce to the minimum, operative interference and examinations. That after infection has taken place, active treatment be instituted as soon as possible and not be delayed by either hope that the patient will get well or fear of criticism, by acknowledging the correct diagnosis.

In conclusion it is the general agreement that there is no specific remedy. That chemotherapy in the form of arsenical salts, silver

salts, mercurial salts or dyes are of little general value, though in a given case they should be considered. That sera and vaccines are still in an experimental stage and without definite value, though always worthy of trial in a specific case. That blood transfusions or injections, are of real value but must be given early and often. That with our present knowledge and judging by results attained in various clinics that main dependence must be on general tonic treatment of sunlight, good food and careful nursing, with specific remedies as an adjunct in each individual case. That preventive treatment is the ideal and each obstetrician should use every prophylactic measure possible from beginning to end of the pregnant period. While it is humiliating to acknowledge it, we must face the fact and that is in cases of puerperal sepsis our most modern active treatment is far from efficient.

But it is with confidence that we face the future for it seems highly probable that with the intensive study that is being made of this problem by the best minds in our profession and with the co-öperative interest of everyone doing any maternity work, that we will be able to at least reduce the incidence of puerperal sepsis and thus the mortality.

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CHAIRMAN GOOD: I will call upon Dr. Robert J. Carpenter, of North Adams, to open the discussion of Dr. Kickham's paper. Dr. Carpenter! (Applause.)

DISCUSSION

DR. ROBERT J. CARPENTER, North Adams: *Mr. Chairman, Ladies and Gentlemen*—I want to congratulate Dr. Kickham on his very able and comprehensive paper. It allows little latitude for any discussion, but I do want to emphasize one matter that seems very important to me, and that is the question of prevention of sepsis. We all know that with all we can do for a sterile technic, all care possible, these cases do occur and apparently without explanation. It is true that at times they occur in such ways as Dr. Kickham mentions, being prone to come when there is a lot of respiratory infection, which goes further, I believe, to prove that we should take more and better care of our patient before she comes to the hospital for delivery than we have before. It is true that we take care of our patients through the nine months previous to delivery, but I feel very strongly that this should not be confined to the usual procedure of blood pressure reading, urinalysis, physical examination, but to go further, absolutely killing any possible chance that there may be a localized infection in the body.

Also, the habits of hygiene must be more clearly impressed on the patient. Personally, I am a strong believer in the effect of heliotherapy during the nine months previous to delivery. I feel that better results are obtained during the months when you can keep a patient out of doors and subjected to sunlight. There is no question in my mind but that it leads to raising the ability of the body to fight infection. If the patient can be brought to your hospital in time for delivery with all local foci of infection absent, her blood in good condition, your chances of running into a sepsis with modern technic are far less.

It seems to me that with this thing occurring as it does, when we try to do all we can to prevent it, we must turn our efforts more and more to the months previous to delivery than to the actual time of delivery.

In the treatment of this condition, Dr. Kickham advances strongly the use of blood. There is no question but that it is our main arm against this infection, and I believe strongly that the use of whole blood in preference to the citrate is much better. I believe that in cases where we fear sepsis, it is a wise precaution to have the donor selected so as to avoid delay. Here in the city it is easier to get the blood. Back in the woods, it isn't nearly as easy. There are no professional donors and for the men who are practicing outside of the city, I think that is a valuable point. If you fear trouble, if you have a patient where there is a fair possibility of trouble, be prepared in advance.

Again, I want to thank Dr. Kickham not only for the paper, but for allowing me to discuss it. (Applause.)

DR. DANIEL J. ELLISON, Lowell: *Mr. Chairman*, of course, I feel a good deal as a previous speaker* does in regard to the matter of my age as a factor in appearing before you, but, never-

*Discussion by previous speaker omitted.

theless, I want to express my appreciation of this paper that Dr. Kickham has read for us. I think we can appreciate the amount of work and the wide personal experience that lies back of it.

In any particular thing in our profession (that is medicine) where there are eight to ten or a dozen different things used in treatment, it is because there usually is nothing of any particular value. But I do feel that in this matter of puerperal septicemia, Dr. Carpenter has laid stress where it belongs on the matter of our prevention of the condition.

Young of Great Britain, in a very able paper last year, concluded that the greatest cause of all in puerperal septicemia was trauma, and from my own experience, what little we have had in our city and little only because our city is of no great size, it has shown us that the cases that develop sepsis are almost always those in which we have interfered. Those few cases that have gone septic from the spontaneous delivery have been some in which there was a demonstrable focus of infection, barring those cases that occurred in waves a few years ago.

That, it seems to me, should be taken as our main reason in this matter, that we should, as Dr. Kickham says, reduce our interference to a minimum, and when we do interfere, interfere in a proper manner. If a section is indicated, let's have a section and not a forced delivery with a corresponding trauma to that cervix from which our absorption is going to take place. But if a section is not indicated, if delivery from below is possible, let us deliver that way so that when we have our cases of sepsis, we can feel at least our hands are clean, that we have not done the thing that is responsible for the result in that case. (Applause.)

Dr. Edwin R. Fleming, West Medford: *Mr. Chairman, Fellows*—It certainly has been a pleasure to listen, this afternoon, to Dr. Kickham's very careful résumé of our present knowledge of the treatment of puerperal sepsis. There is very little I can add to what he has already said.

There was one point that I wanted to try to impress upon you that has been forcibly impressed upon me within the last few years at our hospital in Medford. That is this: We have confined our preparation of the patients who come under our care to one method. We have given up the multiplicity of methods that has been advocated and confined our preparation to this one particular method. I believe our results for the year 1928 prove that it has been beneficial to us. During the year 1928 we had 705 deliveries with no serious puerperal infection.

Our method is simply this: Our patient is shaved carefully. By the way, I should emphasize the word "carefully." Very, very many patients are abused when they are shaved. There are many little areas irritated which are provisional pus pockets; within a very few hours after the skin is abraded, you have a small area of infection developed in that slight abrasion by the shaving of the patient. Of course, it is very easy for the infection from that area to be carried into the birth canal.

That is followed by a very careful tincture of green soap and water wash. In examining these patients, after the average nurse washes them, you will find it has not been thorough. Very much of the smegma has not been removed, and you have got to stand by yourself and see that the nurse, especially a probationer or the nurse who has not been thoroughly trained, does her work perfectly before any manipulation is done internally.

This is followed by seventy per cent. alcohol. There has been much objection raised to the use of alcohol on account of the pain induced. We have not found this intolerable to the patient and the patients do not object to it seriously.

Then a clean vulva pad is applied and the patient is instructed as forcibly as possible not to handle the external genitalia.

That completes the preliminary preparation. If there are further examinations, if the patient has been in labor any great length of time, the scrub is not repeated, we simply use the alcohol wash. Whether this has anything to do with our small morbidity, I don't know. It seems that too much importance should not be given to a series so small, yet we feel that by sticking to this method, we have accomplished something.

In regard to the treatment of puerperal sepsis, there is nothing new, there is nothing I can add, except one point that I would like to impress, and that is that the treatment cannot be delayed until the patient is ready to die. So many of these patients, as Dr. Kickham has pointed out, have grown seriously ill before any attempt to find out the real cause of their illnesses is made. I realize I am treading on rather dangerous ground when I say anything about internal examinations in puerperal infection, but looking back over a good many years, I have firmly come to the conclusion that a very careful, thorough pelvic examination early in the puerpera, if a patient shows signs of illness, will eliminate many of our serious cases of sepsis.

I thank you. (Applause.)

Dr. Stephen Rushmore, F.A.C.S., Boston: *Mr. Chairman, Members of the Section*—The presentation by Dr. Kickham, of this subject, has been most interesting and very comprehensive. There is but one aspect that I wish to consider with you, one to which he has already referred. I am going to take the same liberty with the subject of the paper as did the writer of the paper, and discuss sepsis instead of confining myself to the limits of septicemia. The subject of puerperal sepsis is a very urgent problem with us still. If we operate on a patient, perform a Cesarean section, for example, the great danger

is sepsis. If a patient has toxemia, one of the dangers is that the patient with reduced vitality will develop sepsis.

The aspect I want to dwell on is the prophylactic treatment of puerperal sepsis and the point I have in mind is to call your attention to what we may possibly mean by the term aseptic deliveries. In one sense, an aseptic delivery is a figment of the imagination. We have not attained the results that we thought we were going to attain, that we thought we had a right to attain with our knowledge of the activities of bacteria. In operating in certain regions of the body, we can be reasonably sure that no infection will develop, and we have what we speak of as a relative asepsis. In the field of obstetrics even relative asepsis is, I think, impossible of attainment.

In the lower portion of the vagina, in the later stage of pregnancy, and certainly during the period of delivery at which the head advances and then is withdrawn into the vagina as it crowns, there are introduced into the vagina bacteria, and the danger which I want to emphasize is that any procedure on our part, that introduces anything into the vagina, increases the danger of sepsis to the patient. If there is a slight laceration of the perineum and we push a sponge into the vagina, we necessarily increase the danger of sepsis to that patient. If we introduce the finger into the vagina simply for the purpose of examination, we cannot escape some of the germs which are on the skin at the vulva and which we are going to introduce with that manipulation. I think if we are perfectly honest with ourselves, we shall recognize this danger. Practically, we can overcome it in most cases, but we ought to face it and realize that we are in a field that is full of danger to the patient.

In operating through the abdominal incision, we are ordinarily not afraid of introducing sepsis into the uterus by our operation from above. The danger is that sepsis will enter the uterus from below and that is a danger from which we can really never get away. (Applause.)

DR. CHARLES J. KICKHAM, Brookline: I won't detain you more than one second, because I know everybody wants to hear Dr. Stander and Dr. Shipton.

May I first say I appreciate the kindness with which the various gentlemen have handled my paper. In regard to what Dr. Carpenter said with respect to the preparation of donors beforehand, I quite agree. Dr. Titus of Boston advocated that some years ago, although I believe very, very few have ever followed it up.

Thank you. (Applause.)

CHAIRMAN GOOD: The Section of Obstetrics and Gynecology of the Massachusetts Medical Society, yes, the entire state of Massachusetts, is honored today by having as our guest one of the world's recognized obstetricians, an authority on the subject which he is to discuss. I take great pleasure in introducing Dr. H. J. Stander, the Associate Professor of Obstetrics at Johns Hopkins Medical School. Dr. Stander! (Applause.)

AN ANALYSIS OF 801 CASES OF TOXEMIAS OF PREGNANCY*

BY H. J. STANDER, M.D.†

AN analysis of 801 cases of toxemia of pregnancy constitutes the basis of this paper. This material comprises all toxemic admissions to the Obstetrical Department of the Johns Hopkins Hospital during the six years from May 1, 1923 to May 1, 1929. During this period there were 8,585 admissions to the indoor service of the Clinic, making the total incidence of all types of toxemia 1 in every 10.7 admissions or 9.37 per cent.

One of the first and most important steps in the study of the toxemias of pregnancy is a correct method of classification. At present there is no uniform terminology, with the result that progress in the understanding of these diseases has been greatly impeded. It is, indeed, highly desirable that obstetrical clinics co-öperate and adopt a uniform mode of grouping and designating the toxemias, as has been suggested by Kellogg. This should be done even though the classification adopted is somewhat faulty, because with our incomplete knowledge of today, it is essential that all information gathered at different clinics should be correlated, if we are to advance in our understanding of this group of disorders of pregnancy, which in this country is responsible for one-fourth of the total maternal mortality incident to childbirth, as well as for an appalling foetal death rate.

The writer has advocated the following method of classification, fully appreciating, however, that as we gain more information regarding these disorders, it may become necessary to modify the method of grouping:

Vomiting of pregnancy.
Low reserve kidney.
Nephritis complicating pregnancy.
Pre-ëclampsia.
Eclampsia.

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†For record and address of author see "This Week's Issue," page 494.

Of these, vomiting of pregnancy and eclampsia are very definite and distinct entities, readily recognizable. This cannot be said of the remaining three disorders, low reserve kidney, nephritis, and pre-ëclampsia. It is not the purpose of this paper to discuss in detail the differential diagnosis between these three types of toxemias, but as the above classification is used in our analysis, it may be well to give a brief definition of each type.

Low reserve kidney is probably identical with certain types of "recurrent pregnancy toxemia", with "kidney of pregnancy", with so-called "albuminuria of pregnancy" and with "nephrosis of pregnancy". Its outstanding characteristics are:

1. An elevated blood pressure which drops to a normal level by the end of the puerperium. The elevation is normally not very marked, rarely exceeding 150 or 160 systolic and 90 or 100 diastolic.
2. A slight albuminuria varying from a trace to one gram, and occasionally as high as 2 or 3 grams. The albuminuria likewise disappears during the first few weeks of the puerperium.
3. The blood chemistry, as well as that of the urine, shows nothing abnormal.
4. In subsequent pregnancies the condition may or may not recur, but the patient's condition does not become aggravated. In other words, the kidney substance does not appear to have been injured by the pregnancy, although the kidney reserve seems to have been too low to meet the extra demands of pregnancy, and is manifested by hypertension and the passage of albumin through the glomerular epithelium.

In nephritis complicating pregnancy, one can usually find evidence of pre-existing chronic nephritis or kidney damage. The patient's past medical and obstetrical history, the nitrogen partition in the urine, the analysis of the blood, the presence of oedema, the changes occurring during the week immediately following delivery, the eye-ground findings, and the behavior of the blood pressure and albuminuria are the factors to be considered and usually one or more of these will give us a clue as to the nature of the condition. Pre-ëclampsia is to be differentiated from nephritis complicating pregnancy in that the blood pressure, albuminuria, symptoms and blood chemical findings present a picture similar to that observed in eclampsia, except that convulsions do not occur. The signs and symptoms of pre-ëclampsia usually clear up completely within two or three weeks after delivery, leaving the patient entirely normal.

INCIDENCE

In Table I is shown the relative incidence of the different types of toxemia. It will be noticed that there is a group designated as "Unclassified", which comprises such cases as could not be definitely classified at the end of the puerperium. It is our practice to have all such patients return at the end of six weeks for further study so that a correct diagnosis and classification may be made and the patient given the necessary treatment or advice. This group constituted 7.5 per cent. of all toxemias.

It is interesting to note that every eleventh patient admitted to our Clinic suffered from one or another type of toxemia, an incidence which is higher than is generally given. It will also be seen from this table that low reserve kidney constitutes the most prevalent type, and leaving eclampsia and vomiting out of consideration, makes up 44 per cent. of our toxemic admissions, and is closely followed by nephritis complicating pregnancy. It is important that one bears in mind that one patient in every forty entering the obstetrical clinic is suffering from an underlying nephritis, which may sooner or later cause her death.

TABLE I

Incidence of Toxemias in 8,565 Admissions to Clinic

Type	Number	% of Total Toxemias	Incidence in Total Admissions
Vomiting	76	9.5	1 in 113
Low Reserve Kidney	277	34.6	1 in 31
Nephritis	214	26.7	1 in 40
Preeclampsia	74	9.2	1 in 116
Eclampsia	100	12.5	1 in 86
Unclassified	60	7.5	1 in 143
Total	801		1 in 11

One other interesting and instructive fact is to be learned from this table, and that is, that pre-ëclampsia or the true fore-runner of eclampsia occurs rather infrequently (1 in 116 admissions) and not as often as eclampsia itself.

PRENATAL CARE

It is generally recognized today that prenatal care is a most important factor in the prevention and prophylactic treatment of the toxemias of pregnancy. Table II demonstrates that although prenatal care does not, and cannot, entirely prevent the occurrence of these toxemias, it is nevertheless extraordinarily valuable in reducing the incidence of certain of them. Ac-

cording to our conception that the low reserve kidney is a condition inherent or congenital to the individual, it is not to be expected that prenatal care could prevent it or reduce its occurrence. This is borne out in the table, as 61.4 per cent. of the patients presenting this type had good prenatal care, and yet low reserve kidney was noted.

In eclampsia, on the other hand, the situation is quite different, as this disease is in great part, but not wholly, preventable. Only 29 per cent. of our eclamptic women had received good prenatal care. Accordingly, we must not be discouraged when eclampsia occurs in a woman who has had ample prenatal care, although it is undoubtedly true that its incidence can be materially lowered by means of prenatal care. One of the real values of frequent prenatal examination lies in the fact that it enables us to pick up the patient with pre-eclampsia, and then to treat her in such a manner as to prevent the outbreak of eclampsia.

TABLE II

Pre-natal Care

Type	Good Care	No Care
Low Reserve Kidney	61.4 %	38.6 %
Nephritis	42.5 %	57.5 %
Precolampsia	52.8 %	47.2 %
Eclampsia	29. %	71. %
Total	49.5 %	50.5 %

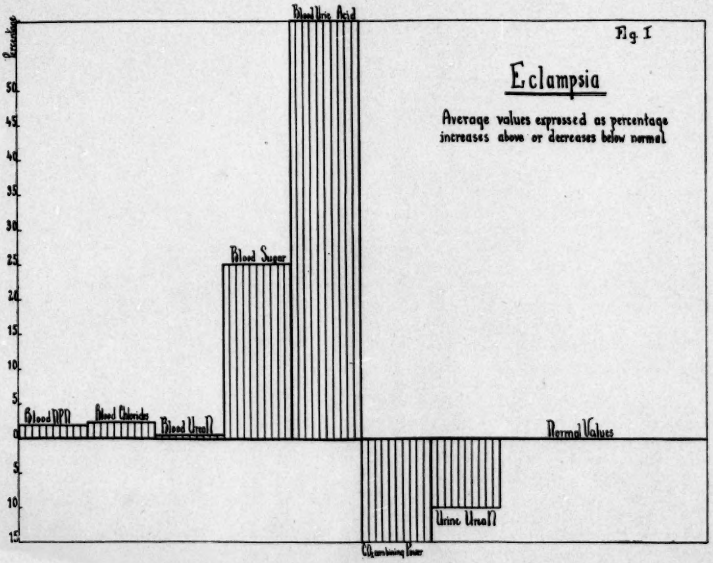
If we divide the 100 cases of eclampsia here considered into "recovered" and "fatal", we find that 30.2 per cent. of the former as contrasted with 21.4 per cent. of the latter had received good prenatal care.

The diagnosis of nephritis complicating pregnancy must not be made at the time of delivery, but as early in pregnancy as possible; and this can be effected only by the help of prenatal examinations. The time to treat nephritis is not at or after labor, but during pregnancy, and at as early a period as possible.

CHEMICAL FINDINGS

The scope of this paper does not permit a detailed presentation and discussion of the chemical changes in the urine and blood of patients suffering from the different toxemias of pregnancy. However, there still exists skepticism in the minds of some as to the value of such studies in these disorders, and it is for that reason that the important findings in 100 eclamptic patients are here presented. The following figures represent the average findings in such patients, as compared with those noted in the normal pregnant woman at term:

	Pregnancy at Term	Eclampsia
Urine:		
Urea N / Total N	77.5%	66.2%



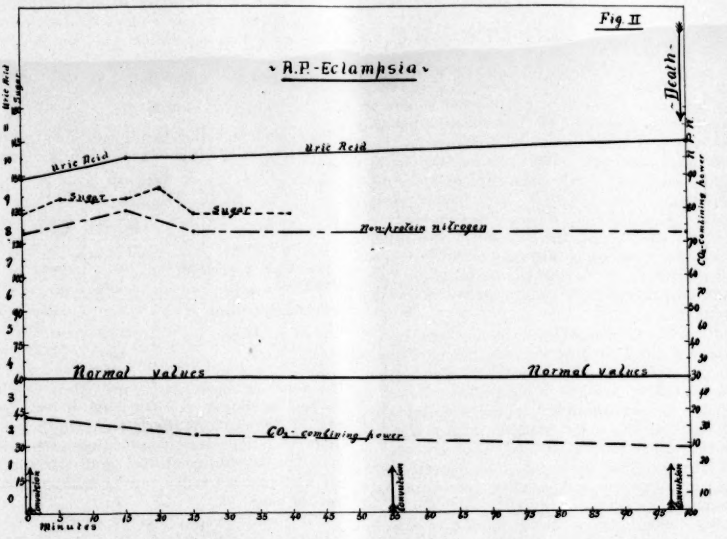


Fig II
A.P.-Eclampsia
Death
Uric Acid
Sugar
Uric Acid
Uric Acid
Sugar
Sugar
Non-Protein nitrogen
Normal values
Normal values
CO2-combining power
Convulsion
Convulsion
Convulsion
Minutes

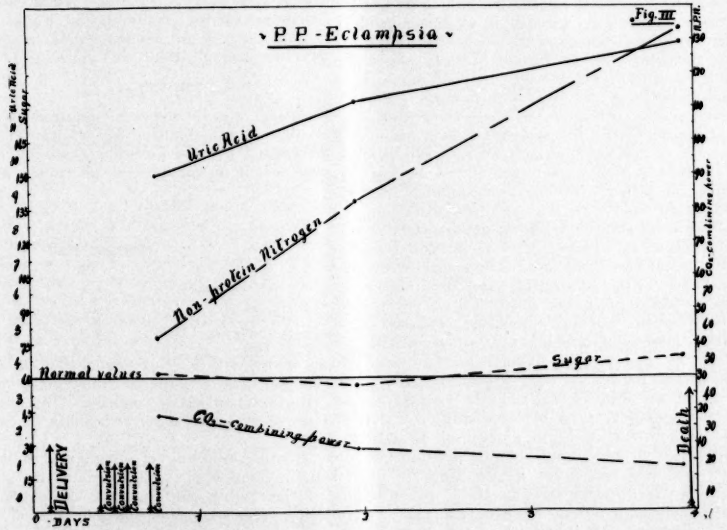


Fig III
P.P.-Eclampsia
Uric Acid
Non-protein Nitrogen
Sugar
Normal values
CO2-combining power
Death
DELIVERY
Convulsion
Convulsion
Convulsion
Convulsion
DAYS

Blood:		
N. P. N.	29 mgs.	37.7 mgs.
Urea N: N. P. N.	45%	46.6%
Chlorides	500 mgs.	511 mgs.
CO_2 Combining Power	45 Vol. %	38.9 Vol. %
Uric Acid	3.0 mgs.	5.9 mgs.
Sugar	60 mgs.	93.5 mgs.

These departures from the normal values are graphically shown in Fig. I, which represents the averages based upon the analyses of about 400 blood specimens. The outstanding changes are to be found in the uric acid and the CO_2 combining power values, the former being greatly elevated and the latter decreased. It will be noted that the non-protein nitrogen, blood urea nitrogen and blood chlorides are usually within the normal limits, while the blood sugar is above the level characteristic of normal pregnancy.

In order to demonstrate further the significance of blood chemistry in eclampsia, Figures II and III have been prepared. The patient whose blood chemical findings are shown in Figure II was admitted to the hospital after having had two convulsions at home; she had three more in the hospital and died 1 hour and 40 minutes after admission. The elevated uric acid and the low and steadily decreasing CO_2 combining power are very striking. The blood sugar remains at a fairly constant level of 135 mgs. per 100 cc. of blood, while the relatively high non-protein nitrogen indicates a marked retention. In general, however, the non-protein nitrogen is usually normal in eclampsia and only becomes elevated as the disease continues, and then only as the kidney becomes permanently damaged, which fortunately occurs in a small percentage of cases of eclampsia. This is well shown in Figure III where the chemical examination of the first sample of blood studied revealed a normal non-protein nitrogen, but as the patient grew worse it rose to 133 mgs. per 100 cc. of blood. This patient suffered from postpartum eclampsia, her first convulsion appearing about nine hours after spontaneous delivery of normal twins. Within the following 6 hours she had three more convulsions, which are shown in the chart. The first blood specimen obtained 16 hours after delivery and 1 hour following the last convulsion, revealed a marked increase in uric acid and a lowered CO_2 combining power. The patient had no more convulsions, but a study of her blood chemistry, as shown in Figure III, shows a progressive increase in the severity of her condition. The uric acid rose steadily to a level of 13 mgs. while the CO_2 combining power fell to 18 volumes per cent. one hour before death. This chart clearly demonstrates that the cessation of convulsions does not necessarily mean cure of the eclampsia, and it further shows that the blood analysis in this case was the only index of the grave condition of the patient. It might be added that two hours before death the patient's appearance, as well as the lack of symptoms, gave the impression that she was recovering, while study of her blood chemistry led to the opposite conclusion.

MORTALITY

The maternal and foetal mortality rates for the 801 cases of toxemia are shown in Table III.

TABLE III

Mortality

Type	Maternal	Foetal
Vomiting	0	14.8 %
Low Reserve Kidney	0	8.3 %
Nephritis	3.7 %	29. %
Preeclampsia	0	18.9 %
Eclampsia	14. %	36. %
Total	2.7 %	18.1 %

The maternal mortality occurs mainly in nephritis and eclampsia, 3.7 per cent. in the former and 14 per cent. in the latter. One must conclude that nephritis complicating pregnancy is indeed a serious condition, and, further, that our maternal mortality rate in eclampsia is still far too high.

The foetal mortality is far worse, and it is appalling to see that in 801 cases of toxemia of pregnancy, there were 145 foetal deaths, a mortality rate of 18.1 per cent. These mortality rates are shown graphically in Figure IV. The foetal deaths in nephritis and eclampsia deserve our special attention.

TREATMENT

Vomiting—In 76 patients admitted to our Clinic because of vomiting of pregnancy, only 3 therapeutic abortions were performed, while 8 cases ended in spontaneous abortion. From these figures one may conclude that in only about 4 per cent. of patients entering the hospital with the diagnosis of vomiting of pregnancy it is necessary to interrupt artificially the pregnancy.

TABLE IV

Induction

Type	Percentage Induced
Vomiting	4.0
Low Reserve Kidney	14.8
Nephritis	37.4
Preeclampsia	24.3

In treating vomiting of pregnancy, it is essential in the first place to determine the severity of the disease, and whether the patient is suffering from starvation and dehydration. In this final stage of the disease it is very necessary to introduce nutrition and water, and this

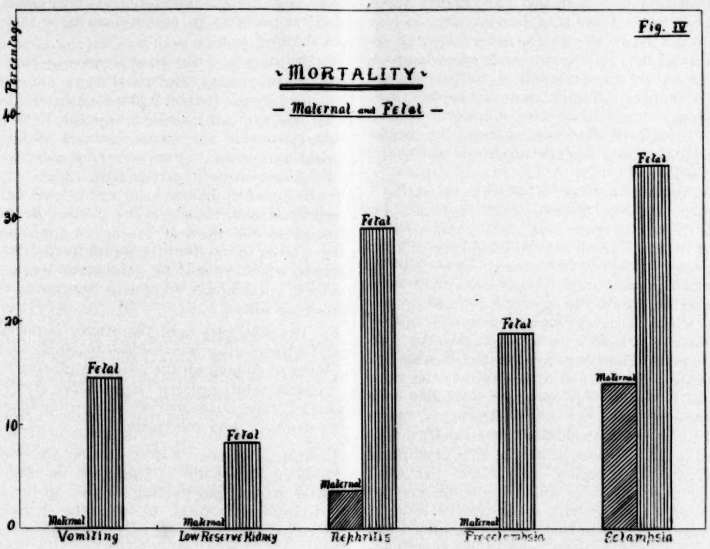
is best accomplished by the intravenous administration of 5 or 10 per cent. glucose solution.

It is our practice in treating patients suffering from vomiting of pregnancy to enforce strict isolation, and to withhold anything by mouth for the first twenty-four hours, but to administer fluid freely by rectum, if necessary. At the end of this time the patient is given small quantities of fluid by mouth at hourly intervals from 9 A. M. to 9 P. M. It is well to alternate the kind of fluid, and such drinks as ginger ale, orange juice, milk and broth may be used. We have found that vomiting usually ceases after the first couple of days, and as soon as this occurs the patient is placed on six small meals per day, together with ample fluids. It is highly essential that on admission the patient be reassured by the physician, her confidence gained and that during the first few days the nurse appear only at the time of feeding. This type of treatment has given us very satisfactory results, and very rarely has it been necessary to resort to more radical treatment.

Low Reserve Kidney—In this type of toxemia we have observed that rest in bed and a low protein diet will usually prove ample treatment. It is sometimes necessary to restrict the patient to a salt-free diet, as by this means oedema of the ankles and legs will disappear more readily. With this type of therapy the patient almost invariably improves, goes through labor without aggravation of the condition, and is discharged from the hospital two weeks following delivery, in good condition, with a normal blood pressure and an albumin-free urine. Very occasionally, however, when the elevation of blood pressure and albuminuria persist at relatively high levels in spite of treatment, we sometimes deem it the part of wisdom to induce labor, in the hope of preventing any permanent renal damage.

Nephritis Complicating Pregnancy—If the nephritic condition is severe, and there is no improvement on the strictly medical treatment, the pregnancy should be terminated. My attitude is rather radical, and if prompt improvement does not occur with rest in bed, restricted low-protein and sometimes salt-free diet, and ample fluids, I advocate the termination of pregnancy by means of a bougie or bag, and contraceptive methods upon discharge from the hospital. If the nephritis is severe and contraceptive advice will probably be ineffectual, it may be advisable to perform a cesarean section with sterilization either by hysterectomy or tubal resection—according to the patient's wishes.

In certain of the milder types of chronic nephritis, rest in bed and dietary treatment will often enable us to carry the patient to term without further undue injury to the kidneys; but it is well that such patients be carefully watched both during their postpartum stay in the hospital and at regular intervals for at



least one year following the pregnancy. The behavior of the blood pressure, the presence or absence of albumin in the urine, headaches and other symptoms, oedema, the study of the eye-grounds, and where necessary blood and urine chemical analyses, give us ample information as to the severity of the kidney condition.

Pre-ëclampsia—The danger in pre-ëclampsia is that it may eventuate into actual eclampsia, and our treatment should be to forestall such an outcome. The milder cases of pre-ëclampsia often respond to rest in bed and dietary treatment, but where there is no improvement it may become necessary to end the pregnancy by induction of labor. In very severe pre-ëclampsia, however, where the outbreak of convulsions appears imminent, prompt cesarean section may be the only means of averting disaster. In such cases, Stroganoff treatment should be begun while preparations for operation are made, and continued afterwards.

Eclampsia—As yet, we have no satisfactory treatment for this disease, which accounts for about 2,500 maternal and over 5,000 foetal deaths in the United States alone, every year. At present the best treatment seems to be one which is conservative, associated with radical interference under spinal or local anaesthesia when the conservative methods fail to improve the patient's condition. For the past five years we have employed a modification of the conservative method of treatment, and have materially reduced our maternal mortality. To this conservation type of treatment we have added the use of antiacidosis treatment by means of insulin and glucose when the CO_2 combining power falls to or below 30 volumes per cent. In such cases 20 to 25 units of insulin are administered together with a protective dose of 2 grams of glucose to each unit of insulin. The glucose is administered in 5 or 10 per cent. solution intravenously, and simultaneously with the injection of insulin. The acidosis may also be combatted by means of sodium bicarbonate.

SUMMARY

The statistics on 801 consecutive cases of toxemia of pregnancy, occurring during a period of six years in the Obstetrical Department of the Johns Hopkins Hospital, are analyzed as to incidence, urine and blood chemistry, prenatal care, maternal and foetal mortality rates, and treatment.

CONCLUSIONS

1. Vomiting of pregnancy responds quite satisfactorily to conservative treatment, which embodies isolation of the patient, an initial period of starvation, fluids by mouth and frequent but small meals. Sometimes it becomes necessary to administer intravenous therapy, but only rarely is it necessary to terminate the pregnancy.

2. Low reserve kidney is best treated by rest in bed and dietary measures. This type of toxemia is never an alarming complication.

3. Nephritis should always be regarded as a very serious complication of pregnancy. Termination of pregnancy and even sterilization are often necessary. The milder forms respond to rest in bed, a low-protein diet, and fluids.

4. Pre-ëclampsia is to be viewed as the forerunner of eclampsia, and as such is a serious complication. Conservative treatment in most cases, and radical interference under local or spinal anaesthesia in exceptional cases seem to give the best results.

5. Eclampsia is the most serious of the toxemias of pregnancy, and its severity may often be gauged by the patient's blood chemistry, especially the uric acid content and the CO_2 combining power of the serum, as well as by the clinical symptoms. The best treatment seems to be conservative, together with radical interference under spinal or local anaesthesia in the exceptional case in which the patient does not respond to the medical therapy. One should always be on the lookout for a rapidly developing acidosis which should be combatted by means of such antiacidosis treatment as insulin and glucose or alkali.

6. Prenatal care is of the utmost importance both in preventing some of the toxemias and in enabling us to pick up the patient suffering from a toxemia and needing immediate attention. Prenatal care is of special value in nephritis, pre-ëclampsia, and eclampsia.

CHAIRMAN GOOD: I shall call on Dr. Foster S. Kellogg, Instructor of Obstetrics at Harvard Medical School, and visiting surgeon to the Boston Lying-In Hospital, to open the discussion of Dr. Stander's paper. Dr. Kellogg! (Applause.)

DISCUSSION

DR. FOSTER S. KELLOGG, Boston: *Mr. Chairman, Ladies and Gentlemen*—Without the slightest shadow of a doubt, you have been listening to the man who more than any other in the history of American obstetrics—and I say this not out of courtesy but because I believe it to be a fact—has correlated and advanced the knowledge of the toxemias of pregnancy. I say this not only because I believe it is true, but because what I have to say may possibly not agree with what he has said, and I say it very humbly.

Had he done nothing but demonstrate conclusively in the laboratory that all inhalation anesthesias are contraindicated in the "toxemic-chronic nephritic group," he would be entitled to great merit. He did not stress that point in his talk, with reference to the anesthesias, either local or spinal, in the whole group. You may

not know it, but he is the author of a recent monograph on the toxemias, which is available and should be read by every person interested in the practice of obstetrics.

The first point of interest is his classification. Whether or not his classification is satisfactory to everybody, or whether it is a final classification, which I think he himself readily admits it may not be, it is the first classification that has the slightest merit or that is based on scientific research and carefully studied cases. If you doubt this, you have only to compare his monograph with the one published in 1922, on the same subject; the last one before his. You will then see the advance in classification as well as the advance in our knowledge of the toxemias in his hands.

The low reserve kidney group undoubtedly exists. We who have neither his chemical facilities nor laboratory training, should remember that we can't count on it; that it may get us into trouble. If you assume that a case of recurrent toxemia falls into that group and is going to act well for you, now and again you will be fooled and it will act very badly; and all that means is that such cases should be as carefully watched as though you mentally placed them in the group of pre-ëclamptic toxemias.

Later along in his work, without any question, I think he will be able to show us some way of sorting out the ones who are going to behave as that group is supposed to behave and the ones that are not, and that will be a distinct step in advance.

Another point is that you should be extremely guarded in making a diagnosis of chronic nephritis on an individual patient and acting on that diagnosis, perhaps sterilize her. This should never be done without study in two pregnancies and intervals of study between and without cleaning up all foci of infection and putting the weight of the individual where it should be. We have seen patients four and five months pregnant with large amounts of albumin, and with elevated blood pressure. We have seen them sterilized on the diagnosis of chronic nephritis when the man who sterilized them didn't know whether they had it or not, since they had no definite past history. We have seen similar cases emptied of necessity, then go through another pregnancy after correction of local infection and weight and attain a live baby.

The question of the incidence of his so-called pre-ëclamptic toxemia group is extremely interesting, because in our 1200 cases we had fifty per cent. eclamptics in one group, twenty-five per cent. eclamptics in another group, and eight per cent. eclamptics in a third group, and if they had eclampsia as far as Dr. Stander's classification goes, we are entitled to assume they had pre-ëclampsia. If pre-ëclampsia only represents five per cent. of the whole group, it assumes a tremendous number of cases of the other sort that were not checked into the hospital, which is a perfectly good possibility. Our own feeling is that pre-ëclampsia must be commoner than his figures show, but it is only a feeling and very likely he is right and we are wrong.

The question of the value of blood chemistry is interesting. As far as we have been able to utilize blood chemistry in the treatment of toxemia, I have found but one place where it is of value. Prognostically, as he has pointed out, it is of great interest and since prognosis is a very important thing, as well as treatment, it is of great use. The only place that I know that it is of value in treatment is this, and so far as I know it has not been stressed before: A patient running an even amount of albumin, not increasing, and blood pressure not going up, showing nothing in her appearance which forces us to induce or deliver, as is sometimes the case, may pile up nitrogen in her blood and in one or two instances where this has been overlooked, I have seen apparent toxic cardiac dilatation follow with simply a blowout of the heart against a kidney, with the patient seriously sick. So that I feel such patients should be emptied on this nitrogen retention alone.

My chief disagreement with Dr. Stander is this—and it really isn't a disagreement at all, for he has said it; it is a question of stress, both in his monograph and in his paper. He stresses eclampsia and treatment of eclampsia and at the same time he reports high eclampsia mortality which is about twice as good as our own eclampsia mortality. So far as I have been able to see, we have never been able to materially reduce the mortality in eclampsia, except by not killing the patients through shock by rapid delivery. Therefore, it seems to me that the stress should be laid not on the treatment of eclampsia, but on preventing the patient getting eclampsia by emptying her uterus. Our figures in a long series of cases are 2.5% as the maternal death rate for what we call toxemia without convulsions, and 25% roughly, for toxemia with convulsions. I think that we can't yet get back of those figures and that we should be radical, as we are, in induction and emptying the uterus in cases that we feel may come to convulsions. (Applause.)

CHAIRMAN GOOD: Dr. Stander's paper will be discussed further by Dr. William A. Ham, the Professor of Obstetrics at Boston University School of Medicine. Dr. Ham! (Applause.)

DR. WILLIAM A. HAM, F.A.C.S., Dorchester: *Mr. Chairman, Members of the Society, Honored Guests*—The directness, the clearness and the simplicity of this paper do not admit of very much discussion, even did the time permit. Just a few words in regard to the effect of prenatal

care on eclampsia. Newell in 2000 cases had an incidence of but one case out of the 2000. Incidentally, in our own work, a similar number, 2000 prenatal cases, showed an incidence of but one case, and that case under prenatal care for about twenty hours. This is significant when we consider that the incidence of the eclampsia itself is less than in other days.

Until 1926, I was quite convinced that general anesthesia, ether particularly, was the anesthetic of choice. Stander in 1926 published a very convincing article, proving that it most assuredly was not, that local anesthesia was the ideal and far to be preferred whenever possible of use.

I will say nothing further except to add that I consider the Section is very fortunate in having a paper of this type. (Applause.)

CHAIRMAN GOOD: We will now hear from Dr. Norman B. McWilliams, of Williamstown. (Applause.)

DR. NORMAN B. MCWILLIAMS, F.A.C.S., Williamstown: *Members of the Section*—As I have been sitting here listening to this most authoritative paper, I was at a loss to understand why the committee should call on me. The only reason I can see is that these gentlemen who have preceded me represent the city doctor and I represent the country. I would remind you that up in the northwest corner of Massachusetts, the babies are still being born, sadly some of them are stillborn and we still have toxemias.

The principal thing that appeals to me based on my readings and my own observations is that the prevention of these toxemias is the most satisfactory form of investigation. I feel that in the city the prevention of these things is systematized. The expectant mother intends to go to the doctor or the clinic, and in the country we are at a disadvantage in that we have not educated the public to the same degree that you have in the city. I think this education comes from the city, so that it is by your help that in the country we will get better results by prevention.

Just a word about Dr. Stander's paper. I was interested in his reference to types. Of course, this will help us all in understanding what form of treatment we should institute and also to remind you that his reference to type is not new, that others have used that—I think Dr. Williams published practically the same outline, except for the first one he mentioned, vomiting in pregnancy. If that has been satisfactory to them, surely it would help us in arranging our cases and cataloguing them with an idea of deriving some help.

The Doctor mentioned studying of these cases between pregnancies, and I think that is possibly where the physician in the country has the advantage of the physician in the city. We see the patients oftener and there is no reason why we can't make very helpful observations.

I was interested in his mention of insulin. Dr. Titus and Dr. Dodds, of Pittsburgh, claim it is contraindicated, but I am glad to hear that Dr. Stander has included this in his outline.

I was especially interested in the question of anesthesia, having read Dr. Stander's previous article on the results of general anesthesia. In this connection, spinal anesthesia opens up a new field and I would like to call your attention to the recent article in the NEW ENGLAND JOURNAL OF MEDICINE of May 23, as worked out at the Lahey Clinic, which precludes, or at least warns us against the unfortunate results in the technic itself.

Thank you very much. (Applause.)

CHAIRMAN GOOD: Dr. Stander's paper is now open for discussion.

Since there is nothing further, do you care to say anything in rebuttal, Dr. Stander?

DR. STANDER: No, thank you. (Applause.)

CHAIRMAN GOOD: The next paper is one by Dr. George M. Shipton, of Pittsfield, Senior Visiting Surgeon at the House of Mercy Hospital, whose topic is "Repair of the Pelvic Floor." Dr. Shipton! (Applause.)

DR. GEORGE M. SHIPTON: Like Dr. McWilliams, I come from back up in the woods and I can't tell you how we men up there appreciate your inviting us down here to appear on your program this afternoon.

INJURIES TO THE PELVIC FLOOR AND THEIR TREATMENT

BY GEORGE M. SHIPTON, M.D.*

INJURIES to the Pelvic Floor have long been recognized. That they occur very frequently at the time of delivery nearly everyone admits, in spite of the occasional physician who calmly tells us that he has conducted from one to two thousand deliveries without a tear. We younger men still have to contend with statements made to our patients by older women that—"It is too bad good old Doctor So and So is not still alive for he never lost a baby or tore a mother".

Normal deliveries with no pelvic floor injury do occur, but the percentage of such cases is so small these days that they are occasions for great rejoicing on the part of the attending physician. For any pelvic floor which is not the same six weeks after delivery as it was six months before

*For record and address of author see "This Week's Issue," page 494.

that procedure, has been injured. Of course it is evident that many of those injuries have been so slight as to be negligible; nevertheless they exist.

Granting that the skill of the individual operator to a certain extent influences the frequency or the severity of the injuries produced, there still must be factors beyond his control which make such a condition so prevalent. And it is to those factors that I wish to call your attention for a few moments.

They fall under two main headings, namely

The Babe and The Mother.

On the part of the babe we have first its size, second its position and presentation; lastly the compressibility or capacity for moulding of its head and body. I include body because I believe many a perineum has been torn by shoulders.

On the part of the Mother the damage producing factors are more numerous, but can to a large degree be discovered and their effects anticipated a little more accurately than with the babe. Her problems include her individual bony structure, the structure of her perineum, and her complexion. I include complexion because I believe that the so-called "China Doll Blonde" offers a more serious obstetrical problem than those women whose skins contain more pigment. Just as they are more seriously affected by the acute infections, so have they less stamina for labor, thereby requiring assistance. The perineum is more liable to develop that white blotting paper appearance under strain with a more marked tendency to tear, and they even seem more prone to postpartum hemorrhage.

As to the bony structure factor, let us briefly review the anatomy involved.

Reviewing anatomy is a bore and I apologize for going back to our first year of medical school. Nearly every writer reviews Embryology and Anatomy. I promise to omit the Embryology and make the Anatomy just as brief as I possibly can and still bring out the necessary points. We are concerned only with the structure of the normal pelvic floor, and the variations in bony formation of the outlet.

The muscles chiefly involved in the cases under discussion are the levators, sphincter ani, and transverse perineal muscles. These muscles are supported by fascia which occurs in two main divisions:—the superficial and deep. Each of these is in turn composed of a superficial and a deep layer. The superficial forms its two layers by coming down around and up behind the transverse perineal muscles where, as Colles fascia, it fuses with the posterior border of the triangular ligament. It is essential to bear in mind the fact that the transverse perineal muscles lie within the folds of this fascia. The other layer involved is the deep one, sometimes called the rectovaginal fascia.

The bony factors involved are two:—the symphysis and the width of the pubic arch. The child must be delivered past the lower border of the symphysis and a long symphysis forces the babe nearer to the posterior part of the birth canal. Likewise, a symphysis which lies at right angles to, rather than parallel with, the direction of the canal means crowding the babe posteriorly.

A narrow arch means that the bulk of the head must be below the level of the tuberosities of the ischii if it is to come through. Forcing the head too far posteriorly means a strain on the muscles and fascia, posterior to the vagina, and unless the vesicovaginal portion of the fascial tunnel lets go, with a resulting cystocele, damage must occur posteriorly. Even before the mucous membrane of the vagina lets go, Colles fascia will sometimes succumb to the strain and rupture. This leaves the transverse perineal muscles without support and one or both will separate from its midline attachment and retreat toward the ischium. With these structures gone we have a protruding perineum rather than one tending to fold in, and there is a sag on that side of the vagina which has lost its transverse muscle. This picture, even with no or a very slight nick at the fourchette, means deep damage and calls for repair work more extensive than the simple closure at the fourchette.

Still, more posterior pressure ruptures the rectovaginal fascia, deprives the rectal sphincter and mucous membrane of their support, and a third degree laceration results. If only this rectovaginal fascia lets go, and we are fortunate enough to preserve the continuity of the sphincter and mucous membrane, we get a rectocele.

We now turn to the method of repairing these various forms of injury. The first attempts consisted of cauterizing chemically the inner sides of the labia. This was later combined with the ligation of any extruding masses. The next step was to denude the labia and stitch them together. In an effort to produce a more substantial support this procedure was augmented by the posterior vaginal flap dissection and a puckering suture. Then came the various modern dissections and repairs.

Every operator has his own particular type of repair and, because in his hands it gives satisfactory results, he is prone to advocate it for others as the only sensible operation. Far be it from me today, to offer anything as the one and only correct line of procedure, or that is so new and startling as to revolutionize pelvic floor work.

Let us first consider the treatment of the fresh laceration. We have seen how it is produced and what has happened to the structures involved. The object is now to restore those structures to their original state. First reconstruct the vaginal tube by a submucous stitch starting at the apex of the split, or apices if we have a double vaginal split. This stitch, taken with deep bites on each side, approximates the

fascia beneath the membrane, which might be missed, by an over and over stitch. This step is concluded when the ends of the hymen ring have been united. The stitch is not tied here, but left long and thrown up on the abdomen. It is now time to repair the supporting structures by closing any separation of the levators. At this point we must remember the deep layer of fascia over the rectum. In order to obliterate a dead space and restore the rectum and levators to their proper relation, this fascia must be brought forward in apposition with the posterior surface of the levators. An exploring finger passed between the edges of the levator will reveal a space from one to one and a half inches deep and a layer of fascia at the bottom. With teethed thumb forceps this fascia is brought forward and a new stitch passed through it from right to left. This is now carried up through the levator on the operator's left; the needle is removed and put on the opposite end of the suture. Then holding the needle in reverse it is passed from below up through the other levator. By pulling this stitch taut the levator edges are approximated and the fascia fixed to their posterior surface. With the needle still in reverse and both ends of the suture held up, another bite is taken through the levators from left to right in order to roll up a broader application of the two muscles. It is then tied. If necessary a second suture of the same nature is put in.

Next we repair Colles fascia by a continuous suture. For reasons which we will show later, this stitch is started and the first end tied about a quarter of an inch below the vaginal floor and the short end left long enough for a future tie. The continuous suture is then carried up to the top of the fascia split and run all the way down to the bottom, left long, but not tied. When this stitch is about two-thirds completed we repair any break in the transversus perineal muscle, for it will be recalled that these muscles lie within the folds of this fascia. If one or both of these muscles have retreated toward its respective ischial tuberosity, it can be recovered by passing a clamp or forceps laterally through a hole which will be found just above the level of the sphincter ani. The ends of the muscles are approximated by the Colles fascia stitch and the united ends drawn up to be included in the fascia suture line before running this suture down the last third. This fascia stitch has also included throughout its length the thin layer of superficial muscles.

We are now ready to close the skin. Before doing so we must recognize another anatomical structure frequently overlooked. Just outside of the hymen ring there is a smooth shelf varying in width from a quarter to a half inch. Obliteration of this shelf frequently gives dyspareunia and constant irritation from the narrow ridge of scar at the fourchette. Therefore, with our next stitch we have two things to accomplish, namely, the obliteration of any dead space between the vaginal floor and its supporting structure, and the preservation of the fourchette. The first stitch with which we repaired the vagina is now passed down from just behind the repaired hymen ring to emerge at the point at which we tied the fascia stitch, which point. it will be recalled, is below the top of the fascia split. It is then tied to the short end of the fascia stitch and the short end cut. Now we can continue this stitch as a subcuticular, but starting the continuous suture at the outer end of the shelf which we do not wish to pucker. It is anchored to the fascia stitch and cannot pull up. When the skin edges are approximated, this stitch is tied to the fascia stitch which had been left long and both stitches cut. So far we have used 20 day chromic No. 2 gut for suture material. Now with two or three fine interrupted sutures we loosely approximate the edges of our fourchette shelf. As a safeguard one or two silk worm sutures are applied as follows:

With the left hand in the vagina as a guide, a suture is introduced about one and one-half inches to the side of the repair, passed deeply in and close to the vaginal floor, emerging on the other side just beyond the line of repair, carried back just over the repair line, reintroduced, and emerging from the opposite side at a point corresponding to the point of original entrance.

These sutures must be tied loosely enough to permit two fingers between knot and skin, to allow for swelling without cutting in; the surface, inside and out is cleaned and dried, painted in and out with half strength iodine, and the entire line kept covered for several days with sterile vaseline. The patient is put on a constipating diet for 4 days. On the fifth day 4 ounces of oil are left in the rectum for 2 hours and an ordinary soap suds enema given. For an ordinary second degree repair, this constipation may perhaps not be absolutely necessary.

Third degree repairs necessitate the repair of the sphincter muscles alone, or together with the mucous membrane. This work should be done before any of the vaginal work. The rectum may be repaired by a variety of sutures, but a safe method is a continuous submucous stitch approximating the edges. Over this a second stitch repairs the fascia. The ends of the sphincter must be located and approximated, but it is no longer considered necessary completely to isolate the muscle. In fact the inclusion of some fascia in the stitch helps maintain the approximation of the muscle ends. After the mucous membrane, muscle and fascia have been repaired, the remainder of the repair proceeds as for that of a second degree.

At the risk of starting an argument I will say that I still attempt to prevent bowel movement for 10 days on a third degree repair.

Secondary repairs differ only in that we must first remove any scar tissue and restore the tissues to the condition in which they were im-

mediately after the damage was done. The main difficulty is in outlining what is scar tissue and after that is removed, in identifying the structures to be restored. As a rule the vaginal scar is free from rugae. Four points must be located before starting the dissection. These are the top of the vaginal scar, the bottom of the skin scar and the separated ends of the hymen ring. With tissue forceps on these points the area may be outlined with a knife. Occasionally one finds a transverse split in Colles fascia with a small curtain rolled down towards the anus. After removing the scar, this appears, can be unrolled and brought up. In secondary third degree repairs all the tissue must be identified and approximated as in a primary repair.

The last condition to be mentioned is the rectocele for which Ward has devised a very reliable operation. He has written a recent complete description of the procedure in the March, 1929 number of *Surgery, Gynecology and Obstetrics*. The essential features are the isolation of the bands of fascia over the rectocele, dividing them and transplanting them together with the hernia pouch, up into the upper part of the vault. The remainder of the repair may be completed either as he describes or as we have given for the treatment of second degree lacerations.

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CHAIRMAN GOOD: I am sorry to announce that Dr. Harold E. Diehl, the Assistant Professor of Gynecology at Boston University Medical School, who was to discuss Dr. Shipton's paper, was taken suddenly ill and is now in the hospital.

Fortunately, we have a very good alternate for Dr. Diehl in Dr. John T. Williams, Instructor in Gynecology at Harvard Medical School and visiting gynecologist and obstetrician for the Boston City Hospital. Dr. Williams! (Applause.)

DISCUSSION

DR. JOHN T. WILLIAMS, F.A.C.S., Boston: *Mr. President, Members of the Section*—The hour is late and I won't detain you very long. There are two very important points that Dr. Shipton brought out in his paper upon which I would like to lay additional emphasis. These are, first, that in sewing up a fresh tear, one should use just as much care to suture the different layers as one does in doing a secondary repair. I think it is not necessary to use quite as complicated a technic as he uses. I think it is very important not to keep the patient under anesthesia too long after the baby has been delivered. I think that you can bring the layers together without the complicated changes of needle and passing sutures from within outward, as he does, but, nevertheless, these principles are correct.

The second point I want to emphasize is the fact that the important thing is to get the fascia. It is the fascia or the layers of fascia that you want to get together, not the muscles. The damage done to the perineum consists not in the laceration of muscle fibers; it consists in laceration of the fascia and allowing the muscle to retract to the side so that you no longer get the advantage of muscular tone in holding the rectum back. So that his operation is anatomically correct.

Normally, as you probably know, the fibers of the levator do not unite with the muscle of the opposite side in front of the anus, but the laceration of the various layers of fascia allows the muscle to retract to the side of the pelvis close to the bone and, therefore, it loses its value as a supporting structure. When the fasciae are brought together correctly, the muscles again exercise their action in holding up the rectum and a restoration of the posterior vaginal wall and perineum to its normal function is obtained.

I thank you. (Applause.)

CHAIRMAN GOOD: We will now hear from Dr. Edward F. Regan, of Framingham, visiting obstetrician and gynecologist of the Framingham Hospital. Dr. Regan! (Applause.)

DR. EDWARD F. REGAN, Framingham: *Mr. Chairman, Members of the Section*—Dr. Shipton's paper interested me and the thing I liked about it was that he brought out the point of repair of the perineum at the time of delivery.

Another point he brought out was that the perineum should be repaired oftentimes when the laceration is slight.

I think that is all. Thank you. (Applause.)

CHAIRMAN GOOD: We will now hear from Dr. Thomas W. Murphy, of Lawrence, visiting gynecologist and obstetrician of the Lawrence General Hospital. Dr. Murphy! (Applause.)

DR. THOMAS W. MURPHY: I think there is nothing further to be said. I think the paper was as complete as need be and redundancy in words is as bad as redundancy in tissue. (Applause.)

CHAIRMAN GOOD: The discussion of Dr. Shipton's paper is now open.

Since there is nothing further, do you care to say anything in rebuttal, Dr. Shipton?

DR. SHIPTON: I think not. Thank you.

CHAIRMAN GOOD: It gives me great pleasure to introduce as the next speaker of the day Dr. Charles E. Mongan, of Somerville, Chairman of the Committee for the Study of the Incidence of Puerperal Septicemia, who will report the year's activity of his committee. Dr. Mongan! (Applause.)

DR. CHARLES E. MONGAN, F.A.C.S.: *Mr. Chairman and Gentlemen of the Section*—As you well know, this Section two years ago passed a resolution creating a committee to study the incidence of puerperal septicemia in Massachusetts. Last year we gave a report which undoubtedly you all read. This year we have another report to give which contains no comment. I will simply read the report and when you get your JOURNAL with the published report, I think you will find food enough for thought as an obstetrician.

REPORT OF THE COMMITTEE ON SURVEY OF THE INCIDENCE OF DEATHS FROM PUERPERAL SEPTICEMIA IN MASSACHUSETTS IN 1928

To the chairman, officers and members of the Section of Obstetrics and Gynecology of the Massachusetts Medical Society:

THE Committee appointed to study the incidence of deaths from puerperal septicemia reported in Massachusetts in 1928, begs leave to submit the following progressive report. This report is the second in a five-year program which the Section has planned.

PERSONNEL OF THE COMMITTEE

The following served this year as members of the Committee:

Charles E. Mongan, M.D., Somerville, Chairman,
Frederick J. Lynch, M.D., Boston, Secretary,
Thomas Almy, M.D., Fall River,
Robert J. Carpenter, M.D., North Adams,
Arthur F. Edgelow, M.D., Springfield,
Daniel J. Ellison, M.D., Lowell,
Edwin R. Fleming, M.D., Medford,
Thomas R. Goethals, M.D., Boston,
William A. Ham, M.D., Boston,
Frederick L. Good, M.D., Boston,
Thomas P. Hennelly, M.D., Pittsfield,
Delbert L. Jackson, M.D., Boston,
Charles J. Kickham, M.D., Brookline,
Foster S. Kellogg, M.D., Boston,
Charles D. McCann, M.D., Brockton,
Thomas W. Murphy, M.D., Lawrence,
Louis E. Phaneuf, M.D., Boston,
Joseph W. O'Connor, M.D., Worcester,
Alonzo K. Paine, M.D., Boston,
Edward F. Regan, M.D., Framingham,
Albert E. Parkhurst, M.D., Beverly.

STATE RETURNS

The number of deaths in the puerperal state reported for 1928 in Massachusetts was 456. Of this number 123 died of puerperal septicemia, or in other words nearly 27%. This is the lowest number of total deaths since 1912 and the lowest number of deaths from puerperal septicemia since 1916. Since 1918 there has been a tendency to a lower death rate. Included in the 123 deaths from puerperal septicemia were 19 deaths due to puerperal septicemia in cases of abortion.

ABORTION

It is the opinion of the Committee that very little information of any value is to be obtained by the study of deaths by septicemia which have occurred in cases of abortion. As a rule this class of case is infected before it comes to the attention of physicians or before it arrives at the hospital. A clear and truthful history of these seems impossible to obtain. Some of these cases should be classified under the heading of criminal abortion but as indubitable evidence is not at hand, they fall into the class of septicemia. Therefore, the Committee thinks that it would be time wasted to pay further attention to this matter. If there is a hospital at hand the physician who is first called refers these cases to the hospital. This accounts for the fact that most of these patients die in hospitals.

ECTOPIC GESTATION

The Committee would call attention of the profession at large to the wisdom of confirming the diagnosis of Ectopic Gestation by microscopical pathological examination. It is a well-known fact that all ruptures of tubes and ovaries are not caused by Ectopic Gestation. Rupture of hemorrhagic cysts of ovary and ruptured varices of the broad ligament may simulate Ectopic Gestation. If the patient dies of septicemia after a ruptured Ectopic Gestation, it is classified as a death from puerperal septicemia; whereas, a death from ruptured hemorrhagic cysts of ovary would be classified as a septicemia, non-puerperal.

PHLEBITIS

It is also well to call the attention of the profession to the fact that a death from Phlebitis complicating pregnancy or parturition is classified as a death from puerperal septicemia. One such death was reported in which death occurred before the birth of the child and it was classified as a death from puerperal septicemia. Deaths from Phlebitis in the puerperal

state are classed as deaths from puerperal septicemia.

PYELITIS

Deaths from Pyelitis occurring during pregnancy or parturition are classed as deaths from puerperal septicemia.

SEASONAL DISTRIBUTION

The month of March claims the largest number of deaths of patients in the puerperal state and September, the lowest number of deaths. This condition is fairly constant over a period of a great many years. The peak is reached in March and generally subsides until the late summer and September when the rate is the lowest.

PARITY

To a request sent to physicians reporting deaths from puerperal septicemia, 63 replies were obtained. Of these 63 returns, 50 returns furnished sufficient data from which a study could be made. Therefore, this report will deal with a group of 50 cases.

Para I contributed 30% of the deaths
" II " 32% " " "
" III " 8% " " "
" IV " 12% " " "
" V " 6% " " "
" VI " 8% " " "
" VII " 2% " " "
" IX " 2% " " "
That 42% died at Home
" 48% " " hospitals
" 10% did not report.

TYPE OF DELIVERY

54% were reported as normal
6% " " " instrumental
2% " undelivered
4% " delivered by version
34% did not report type of delivery
44% of all deliveries had complications
28% did not report on the question of complications and
28% reported no complications.

Among the complicating diseases reported were Phlebitis, Pyelitis, Epilepsy, infected perineum, salpingitis, acute endocarditis, acute dilatation of the heart, respiratory infection, pulmonary tuberculosis, one ruptured uterus, and one doubtful rupture of uterus after the administration of pituitrin.

ADVENT OF TEMPERATURE

20% of the cases had a temperature on the first day
18% of the cases had a temperature on the second day
16% of the cases had a temperature on the third day
6% of the cases had a temperature on the fourth day
2% of the cases had a temperature on the fifth day
6% of the cases had a temperature on the sixth day
10% of the cases had a temperature on the seventh day
2% of the cases had a temperature during labor
4% of the cases had a temperature three days before
2% of the cases had a temperature one day before
14% did not report.

CULTURES

30% reported positive cultures
18% " sterile "
52% did not report.

Of the cultures reported, there were two cases of Streptococcus and Staphylococcus. The other cultures reported were Colon Bacillus, Streptococcus Viridans and Streptococcus Hemolyticus.

PRENATAL CARE

64% reported adequate prenatal care
6% did not report
14% had doubtful prenatal care
16% had no prenatal care.

PERINEAL LACERATIONS

54% had no lacerations
12% were cesarean sections, consequently no perineal lacerations
20% reported tears
14% did not report.

PLACENTAL COMPLICATIONS

76% reported none
6% had retained placenta
4% had postpartum hemorrhage, one of which occurred in a case where there was a manual extraction of the placenta.

AUTOPSY

6% of the cases reported were autopsied and the autopsy confirmed the diagnosis of puerperal septicemia.

EXAMINATIONS

24% of the cases were reported as not examined
24% were examined by rectum
32% " " by vagina
20% did not report.

RELATION TO COMMUNITY INFECTION

Under this heading there was reported one case of common cold; one case of tonsillitis; one case of influenza accompanied with bronchitis; one case of common cold before instrumental delivery.

TOXEMIA

The toxemias did not seem to play any rôle in this survey.

MASSACHUSETTS BIRTH RATE IN 1928

State 18.3

The highest birth rate 26.4 was reported from Woburn.
Population 18,370
24.2 was reported from Waltham.
Population 34,746

21.6 was reported from Newburyport. Population 15,656

20.4 was reported from Fitchburg. Population 43,609

20.4 was reported from Melrose. Population 20,165

The lowest birth rate 3.1 was reported from Brookline. Population 42,681

Woburn did not report any cases of puerperal septicemia but did report two other deaths in the puerperal state.

Waltham did not report any cases of puerperal septicemia but two other deaths in the puerperal state.

Newburyport did not report any deaths in the puerperal state.

Fitchburg did not report any deaths of puerperal septicemia but two deaths in the puerperal state.

Melrose did not report any deaths in the puerperal state.

Brookline, of the larger cities or towns, whose birth rate is the lowest did not report any cases of deaths in the puerperal state.

The City of Boston with a population of 779,620 did not report any deaths from puerperal septicemia in November 1928, and one each in June and December 1928. Geographical situation does not seem to play much part in deaths from puerperal septicemia although certain so-called country cities with a higher birth rate than the average did not report any puerperal septicemia. These cities cited have no crowded tenement house districts, and no congested population in small areas.

COMMENT

The Committee is of the opinion that the so-called prenatal care, which consists generally of taking blood pressures, examination of the urine and pelvic measurements, is not sufficient. The Committee thinks that the profession should make a thorough and complete physical examination of a pregnant woman. It feels that if this is done many disasters may be avoided or at least the physician in attendance may be fully aware of the condition of his patient. It is true that this will take more of his time and will largely be routine work. Nevertheless, the Committee feels that it is incumbent on the attending physician to do this and do it thoroughly. The Committee wishes to thank the profession of Massachusetts for its willingness to aid in this work. We wish to extend our thanks to Secretary of State, Frederick W. Cook, for his uniform kindness and courtesy in placing at the disposition of the Committee the available data in his office. To Robert S. Leonard, State Registrar of Vital Statistics and the clerks under his supervision, we extend our heartiest thanks for their splendid co-öperation and aid in dealing with a very complicated problem.

Respectfully submitted,

CHARLES E. MONGAN,* *Chairman,*

FRED J. LYNCH, *Secretary of the Committee.*

DR. MONGAN: I want to make only one comment. A Congressional Committee last January had a hearing on the Sheppard-Towner Bill, or the new Sheppard-Towner Bill. Many physicians went to that meeting. Some gave evidence based upon knowledge of the conditions which we are discussing; others gave evidence when they had no knowledge of the subject. One young man from Massachusetts went to Washington and gave his opinion. He was cross-examined by the congressmen, and I have been before congressional committees and I will assure you that some congressmen can cross-examine. Among other things one congressman said to the young gentleman from Massachusetts, "Doctor, Is it not the duty, and the privilege, and the responsibility, of the medical profession to see that men before they go out to practice are fit to do their work?"

Dr.—"I think you are quite right."

Congressman—"Now if that is so, we will have to go and make you do it, will we not? You realize the responsibility, but what are you doing?"

This problem is yours as well as mine. We are all interested and more than anything else, we are interested to such an extent that we don't care about the federal, the state, or the city governments assuming any responsibility for which doctors are trained. It is a medical problem. It should rest with the medical profession and the medical profession should solve it.

I thank you. (Applause.)

CHAIRMAN GOOD: Is there any comment on the report?

The Chair has waited until now to express any opinion about the character of the papers that we have listened to this afternoon. They were all very excellent papers. It would be wrong to pick out any particular paper and stress that one. One paper was as good and as interesting as another. I want to thank and commend the readers of the papers and also those who so kindly discussed them.

CHAIRMAN GOOD: *Members of the Section*—Because of my desire to expedite the day's program I shall not await the completion of the program to make my report to you of the activities of the Section during the past year. You have heard from Dr. Charles E. Mongan of the work accomplished by our committee for the Study of the Incidence of Puerperal Septicemia—for me to make further comment on this phase of our work would be but repetition.

I would like to say, however, that because of

*For record and address of author see "This Week's Issue," page 494.

our desire to cut down the maternal death rate from Septicemia and from other causes, and also to reduce infant mortality, our committee has traveled from one end of the State to the other, having so called "Obstetrical Nights" and has attempted to teach better obstetries by aid of moving picture films. We have held meetings in Somerville, Boston, South Boston, East Boston (for the combined East Boston, Chelsea and Winthrop Medical Society), Cambridge, twice in Arlington, Belmont, Winchester, Melrose, Medford, Framingham, Lowell (for the Middlesex North District Medical Society), Lawrence, Haverhill, Norwood (for the Norfolk District Medical Society), Pittsfield, and Fall River. The Fall River meeting was conducted by Dr. Foster S. Kellogg. At nearly all of the other meetings our committee was represented by the entire membership, and every effort was made to help solve the obstetrical problems of the busy practitioner. Judged by the complimentary messages received from every part of the State, we feel that our work has been appreciated and has not been done in vain. It is estimated that our committee has addressed between a thousand and fifteen hundred people interested in our work.

Because of the excellent results obtained by Dr. Mongan and his committee for the Study of the Incidence of Puerperal Septicemia, our committee deemed it wise to do what we could in an attempt to reduce the all too high mortality from hemorrhage and the committee of three, Dr. Foster S. Kellogg—Chairman, Dr. Alonzo K. Paine and Dr. Louis E. Phaneuf, has been appointed to study this problem.

Because of the opinion of some of our committee that more time should be devoted to the study of obstetrics in our medical schools a Committee has been appointed to consider seriously this most important subject. We are of the opinion that even in the event of its being impossible to change the curricula of our schools, much good will ensue from the interchange of ideas by the various members of the Committee. This committee is composed of Dr. Charles E. Mongan—Chairman, Dr. William A. Ham, of Boston University Medical School, Dr. Alonzo K. Paine, Tufts Medical School and Dr. Fredrick J. Lynch, Harvard Medical School and Tufts Medical School.

In closing I want to thank Dr. Louis E. Phaneuf, Secretary and Dr. Fredrick J. Lynch, Clerk, Dr. Thomas Almy, Fall River; Dr. Robert J. Carpenter, West Adams; Dr. Arthur F. Edgelow, Springfield; Dr. Thomas P. Hennelly, Pittsfield; Dr. Alonzo K. Paine, Boston; Dr. Joseph W. O'Connor, Worcester; Dr. Albert Parkhurst of Beverly, Dr. Charles J. Kickham, Boston; Dr. Foster S. Kellogg, Boston; Dr. Charles E. Mongan, Somerville; Dr. Delbert L. Jackson, Boston; Dr. Edward F. Regan, Framingham; Dr. Thomas R. Goethals, Boston; Dr. William A. Ham, Boston; Dr. Thomas W. Murphy, Lawrence; Dr. Charles D. McCann, Brockton; Dr. Carl C. Persons, New Bedford, and Dr. Edwin R. Fleming, Medford, for their loyal support to me and for their untiring efforts in the cause of good obstetrics.

I have been an officer in other societies and have served on numerous committees, but never has it been my good fortune to meet a more enthusiastic group of gentlemen—not one of whom has any place in his vocabulary for the word "selfish", and everyone of whom has worked hard with no other thought in mind but what was best for the practice of Gynecology and Obstetries. To the new Officers of the Section I extend my most sincere wishes for success and a promise to help them in any way that I can.

CHAIRMAN GOOD: The meeting is declared adjourned.

The meeting adjourned at six-twenty o'clock.

The following officers were elected to serve the Section of Obstetries and Gynecology for the ensuing year:

Chairman—Dr. L. E. Phaneuf, Boston.
Secretary—Dr. A. K. Paine, Boston.
Clerk—Dr. F. J. Lynch, Boston.

RESPIRATORY TRACT INFECTIONS IN MASSACHUSETTS IN THE WINTER OF 1928-29*

BY GEORGE H. BIGELOW, M.D.,† AND HERBERT L. LOMBARD, M.D.†

WITH an epidemic present or threatened, the health administrator has two responsibilities: first, to take, or be prepared to take, all steps which, in our present knowledge, may be expected to reduce or mitigate the ravages from the particular disease in question; and second, to gain and maintain the confidence of the public that the situation is being adequately handled. We all know only too well that the two things frequently have little to do with each other. Also, we are sorry to say that the official future of a particular administrator depends, perhaps, more upon his ability to strut reassuringly before the public than upon the inherent soundness of his strutting.

The paradox which may exist between these two responsibilities is not so apparent with diseases in which our knowledge of control practice is reasonably specific, such as smallpox, typhoid fever, diphtheria, septic sore throat, and rabies; but it becomes quite evident when dealing with diseases in which our scientific ignorance is colossal, such as infantile paralysis and influenza. We have all blushed for shame that, in the name of prevention, people have been forced to walk over sheets soaked in disinfectant; lap-dogs and their foster mothers have been parted; automobiles have been detoured around towns over roads where the menace of cranial trauma was enormous; railroad stations have been staffed with otherwise honest physicians, who, after inspection of the tongue or other easily accessible organ, issued travel permits; at one time or another everything from schools to soda fountains has been closed, except transportation and the mouths of the preposterous administrators. In all this, the stamp machine vendors, the paper cup interests, the handkerchief manufacturers, and the proprietors of proprietaries applaud and egg us on. To be sufficiently active to satisfy the public and still keep one's own self-respect in the presence of such diseases is even more taxing on the health officer today than obtaining an increase in his own salary.

We realized all this when the almost torrential sweep of "influenza" started east, last fall, from the fair state of California. Was it influenza? How extensive? Would it burn itself out? What of a second wave which was so much talked of and for which no one would assume responsibility? By December our papers were carrying daily accounts of schools and colleges closed. In Massachusetts one college closed a week early because of "influenza", while another was considering not closing at all during the Christmas vacation for the same reason. Which was right? We must give advice. That was what we were paid for. Unless we struck some gesture, we would wake to find a Citizens' Committee spending money like water, and terror stalking abroad; yet our ignorance as to the current situation in regard to respiratory disease in Massachusetts was about as great as was our ignorance as to the situation in the rest of the country. We organized a central clearing house for physicians, nurses, transportation, and necessaries, which could become effective within twenty-four hours. Similar organizations were planned locally. We gave no publicity to this, but started turning every stone to find out just when the situation would warrant the inauguration of this service. For the administrator, it is fully as awkward to blat about the institution of an elaborate emergency service and find no emergency on which to use it as it is to have a bang-up emergency and no organization. This résumé of the sources from which we sought information as to the current influenza situation in comparison with what, in retrospect, we find actually happened is presented in order that the accuracy and currentness of the sources may be compared. At another time we must know somewhat better how we can find out just what the respiratory disease situation actually is at a given moment.

Probably the most accurate information that can be obtained on this matter is based on the death rate of pneumonia, bronchitis, and influenza combined. These deaths lag two weeks or more behind the acute precursors and their routine collection lags a few weeks more, so that they are of no value in determining precisely when the emergency organization should be released. In retrospect, we find that in the month of January they were two and one half times (2.6) what a five-year average would have led us to expect. In February, 1920, the death rate was about twice as high as in January of this year, and in October, 1918, it was eight times as high.

As another way of judging what actually happened last winter, we utilized the method and form of survey developed by the United States Public Health Service and applied it to Nantucket, Great Barrington, Palmer, and Saugus, four communities widely scattered in the State. The data on 10,000 persons thus collected were pooled with 5,000 obtained from Boston by the Service for this report. These data were divided into two groups, "total" and "major" respiratory diseases, the latter group including only those cases confined to bed for three days or more. Thus the classification was

*Massachusetts Department of Public Health.

†For record and address of author see "This Week's Issue," page 494.

independent of the patients' terminology, such as pneumonia, influenza, cold, grippe, or doubtful.

What then were our methods of current approach and how accurate did they prove to be?

Beginning the middle of December, we obtained, more or less regularly through January or later, the following information:

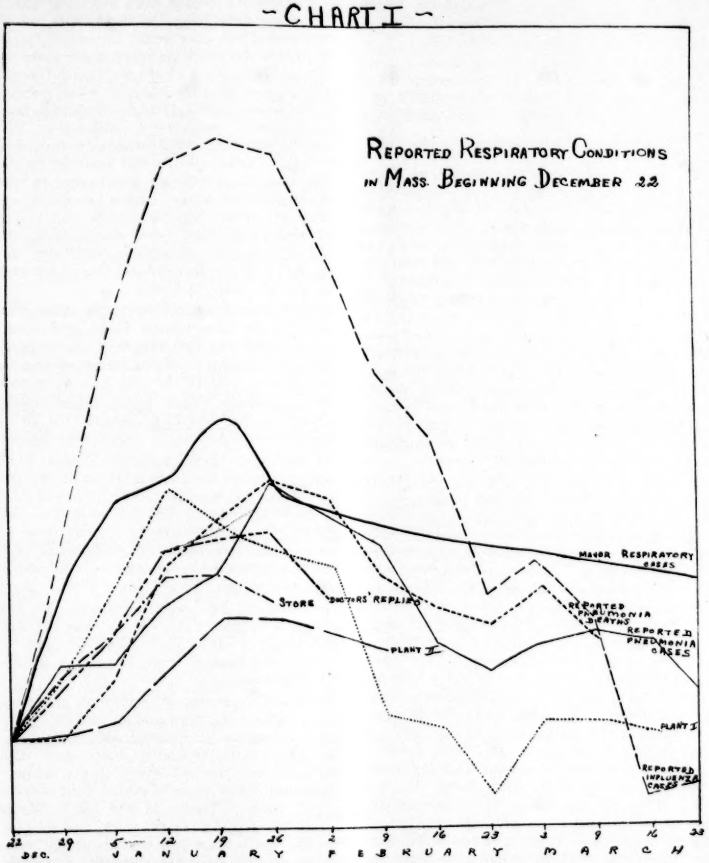
(1) Daily telegraphic reports from our District Health Officers as to the pneumonia deaths in six of the principal cities scattered widely over the State and representing about one-third of our population, i.e., about 1,400,000.

(2) In addition to the daily reports of influenza and lobar pneumonia which have been received routinely since 1918, we requested two hundred physicians selected as representative of the profession throughout the State to send us weekly the total of all respiratory diseases seen by them.

(3) One large public utility in Boston, representing 3750 persons, gave us daily their total absenteeism as compared with their normal absenteeism and that of the year before. They also gave us from time to time the same figure for various cities across the country. This allowed us to follow roughly the spread of the disease.

(4) Another public utility, representing 3400 persons, furnished their daily respiratory

- CHART I -



disease absenteeism for this year and last year.

(5) A large department store, employing about 4000 persons, listed their daily dispensary calls for respiratory infection with last year's figures for comparison.

These three industries gave us this information through their medical departments, which is excellent evidence of one of the valuable by-products of such service to a health officer.

(6) From time to time, we obtained figures from four of the larger Boston hospitals as to sickness absenteeism among their staffs and pneumonia in their wards as compared with last year.

These data are shown on Chart I, as compared with the major respiratory cases as found by the survey. The curves are superimposed on each other, starting December 22, and are made on arithlog paper, which allows us to measure rates of increase. The respiratory cases as found in the survey are probably the most accurate picture of what actually happened, but these are of little value in showing precisely when unusual conditions began, since we do not know the curve for these diseases in these communities in a "normal" year. The respiratory deaths are probably the best for this comparison. Since there is a lag of a week or two between cases and deaths in these conditions, it is perhaps reasonable to conclude that during the first week in January there was an abnormal increase in cases of respiratory disease.

Beginning with December 22, the respiratory cases as shown on the survey and the reports of influenza parallel each other in their abrupt rise, but by January the curve of survey cases begins to flatten, while the influenza reports continue pyramiding. This would lend credence to the feeling that the influenza reports are influenced more by publicity than actual conditions. This is further borne out by the quite rapid fall in reported influenza in February, while the survey cases remain up. It is interesting that for December 22 the ratio between the survey cases and the reported influenza was 176; for January 26, it had fallen to 22; and for February 23, it had again risen to 196. A similar, though less marked, ratio exists between the reports of lobar pneumonia and influenza, the figures for the same dates being 13, 2.5, and 5.6. Thus, if we accept the curve of the survey cases as the most accurate picture of what actually existed in Massachusetts, we must discard the reports of influenza as a basis on which to institute emergency service.

During the critical period up to the middle of January, the replies from doctors, the data from Plant I and the department store, and the reported pneumonia cases quite closely parallel each other. We are somewhat surprised at the pneumonia cases as we should have expected a slight lag, though not as much as is seen in the pneumonia deaths. Perhaps, however, the weekly intervals on which the chart is based are too crude to show this. Throughout, Plant I most nearly parallels the curve of the survey cases, though the data from the doctors and the department store are not bad as far as they go. For some reason, the curve of Plant II is quite different, particularly at first, and is more like the pneumonia deaths than anything else. Although the data from the two plants are different, those from one being based on total and those from the other on respiratory absenteeism, this would hardly account for the differences in curves, since at that time of year respiratory disease is so overwhelmingly the chief cause of absenteeism. Possibly a difference in the financial handling of absenteeism may account for this. Perhaps, then, the respiratory disease attendance at the plant dispensary, as used in the department store figures, is the more dependable. These figures can be obtained daily with less effort than the weekly returns from a large number of physicians, but they do not take into account individuals taken sick at home who do not come to work.

The figures from the hospitals showed no increase in sickness among their staff over last year, through the first ten days of January, nor anything unusual in the number of pneumonia admissions.

It is perhaps worth while summarizing the findings on the 15,000 persons in the five communities surveyed as to respiratory diseases.

It is interesting that the highest rates of weekly increase were from December 22 to January 19, which was the peak, the increases varying from nothing to 200 per cent. The same is roughly true of the weekly reports from physicians. The total lack of comparable data in previous years, however, makes it impossible to know how much, if any, this exceeds "normal".

In Boston, but not elsewhere, the females showed a higher rate, which was statistically significant. (Table I.) The 0-9 age group showed the highest rates and the 20-29 and 50-59 the lowest.

Persons reporting a cold were disabled for an average of six days and in bed for two; with grippe they were disabled eleven and in bed five days; with influenza they were disabled fourteen and in bed seven days; while with pneumonia they were disabled four weeks and in bed three. (Tables II and III.) While the period of absence from work for grippe, influenza, and pneumonia was about the same for Boston as elsewhere, the disability for colds was consistently shorter in Boston. Whether this means a milder disease or greater economic pressure, it is of course impossible to say.

Physicians were employed by all the individuals with pneumonia, three-quarters of those with influenza, two-thirds of those with grippe, and one-quarter of those with colds. (Table IV.) About a quarter of those sick in bed for three days did not employ a doctor. In Boston this group was more than a third. In fact, in the

TABLE I

INFLUENZA SURVEY

RESPIRATORY DISEASES BY AGE GROUPS

Rate per 100

Age	Population			Total Respiratory Diseases			Major Respiratory Diseases			Minor Respiratory Diseases		
	M	F	T	M	F	T	M	F	T	M	F	T
0-9	1593	1591	3184	33.2	35.4	34.3	17.6	18.3	17.9	15.6	17.1	16.4
10-19	1487	1560	3047	24.9	25.7	25.3	10.8	12.4	11.6	14.1	13.3	13.7
20-29	1104	1200	2304	18.7	24.2	21.5	7.8	11.0	9.5	10.9	13.2	12.0
30-39	1144	1320	2464	23.0	29.2	26.3	11.8	15.2	13.6	11.2	14.0	12.7
40-49	963	1029	1992	20.3	28.1	24.3	9.8	13.6	11.7	10.5	14.5	12.6
50-59	705	740	1445	20.8	25.8	23.3	7.2	9.1	8.2	13.6	16.5	15.1
60 +	719	871	1590	25.2	26.5	25.9	10.3	11.0	10.7	14.9	15.5	15.2
Unknown	33	67	103	27.3	23.8	25.3	19.5	11.9	14.6	8.3	11.9	10.7
Total	7751	8378	16129	24.5	28.2	26.4	11.4	13.5	12.5	13.1	14.7	13.9
Boston	2883	3088	5971	20.9	25.6	23.5	9.1	12.8	11.0	11.8	12.8	12.5
Gt. Barrington	1160	1380	2540	29.1	32.4	31.0	14.6	15.2	14.9	14.5	17.2	16.1
Palmer	1238	1312	2550	25.8	28.3	27.0	11.2	12.8	12.0	14.6	15.5	15.0
Nantucket	1228	1294	2522	26.3	28.5	27.0	12.4	12.4	12.4	12.9	16.1	14.6
Saugus	1242	1304	2546	28.4	31.9	30.2	13.3	15.1	14.2	15.1	16.8	16.0

Population—Unknown—M should be 36.

TABLE II

INFLUENZA SURVEY

Average Days Disabled by Diagnosis

Disease	Boston		Gt. Barrington		Nantucket		Palmer		Saugus		Average	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Colds	3.9	3.6	6.0	5.7	6.7	6.7	6.8	6.2	5.5	7.0	5.8	5.6
Pneumonia	22.1	15.9	37.5	17.5	*	27.0	42.0	28.4	16.5	29.1	27.5	23.6
Grippe	10.6	11.6	10.1	10.3	12.2	12.1	8.7	9.9	11.1	11.3	10.5	11.0
Influenza	12.9	14.9	12.4	12.6	12.8	15.4	9.7	11.2	11.5	20.2	11.9	14.9
Influenza-Pneumonia	31.5	29.5	*	35.0	15.0	0.0	19.0	42.0	60.0	0.0	28.1	21.3
Doubtful	4.0	7.7	3.0	0.0	0.0	0.0	10.0	0.0	6.3	9.2	4.7	3.4

*Unknown

Nantucket Colds—Male should be 5.7, not 6.7 as given in Table II.

TABLE III

INFLUENZA SURVEY

Average Days in Bed by Diagnosis

Disease	Boston		Gt. Barrington		Nantucket		Palmer		Saugus		Average	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Colds	1.8	2.5	1.8	1.1	1.5	1.6	1.7	1.7	1.2	1.6	1.6	1.7
Pneumonia	19.3	11.4	16.6	14.0	29.2	20.0	21.0	19.4	12.9	21.4	19.8	17.2
Grippe	5.5	6.0	4.3	4.2	5.1	5.0	4.0	3.9	6.0	4.5	5.0	4.7
Influenza	8.4	9.0	6.3	6.7	5.6	6.9	5.3	6.1	5.9	9.8	6.3	7.7
Influenza-Pneumonia	23.6	22.6	21.0	28.0	10.0	0.0	17.0	35.0	35.0	0.0	21.3	17.1
Doubtful	0.0	3.3	3.0	0.0	0.0	0.0	0.0	0.0	4.3	1.5	1.5	1.0

Boston cases, except for the pneumonias, those without a doctor were consistently higher than in the other four communities. Again, was this because of severity, economics, or other reasons?

During the three months studied, 2.5 per cent. of the sick individuals had more than one attack of the diseases studied, with an average interval of thirty-two days between.

A composite picture of the epidemic obtained from physicians in the four towns is as follows: The disease was largely upper respiratory. Severe headaches and backaches were present and burning of the eyes was frequent. On Nantucket Island chills were pronounced, but in the other localities they were generally absent. Moderate fever lasted for about three days, followed by considerable prostration which had no relation to the severity of the acute stage. The incubation period was short and the disease went through families rapidly. The symptoms were much milder than in 1918. Complications were rare and most doctors preferred to call the disease grippe rather than influenza.

TABLE IV

INFLUENZA SURVEY

Respiratory Diseases by Physicians Employed

Per Cent Having Physicians'

Disease	Boston	Gt. Barrington	Nantucket	Palmer	Saugus	Average
Total respiratory diseases	38.9	54.6	51.5	56.7	50.2	50.4
Major respiratory diseases	65.8	83.2	78.4	75.4	78.4	76.2
Minor respiratory diseases	15.0	29.6	28.6	40.8	25.1	27.8
Colds	18.2	29.1	30.5	42.2	26.8	29.4
Pneumonia	100.0	100.0	85.6	85.6	100.0	94.2
Grippe	64.4	74.0	73.9	64.4	65.1	68.4
Influenza	65.2	75.3	76.2	73.3	76.4	73.3
Influenza-pneumonia	100.0	100.0	50.0	100.0	100.0	90.0
Doubtful	10.0	50.0	0.0	0.0	50.0	22.0

CONCLUSIONS

(1) Massachusetts experienced an epidemic of influenza during the winter of 1928-29, which reached its height from the middle of January to the middle of February. This was about one-half as severe as that of 1920 and one-eighth as severe as 1918.

(2) About one-quarter of the population was sick with respiratory diseases and about one-eighth was sufficiently sick to remain in bed three days or more.

(3) While none of the methods of estimating prevalence were accurate, it would seem that the reported pneumonia cases, the weekly respiratory disease reports sent by two hundred physicians from all over the State, the total daily absenteeism from one of the public utilities, and the total dispensary visits for respiratory disease at one of the department stores were the most serviceable indices of the current situation. Could such figures as these be plotted against the average experience of five years, or even against the experience of a "normal" respiratory disease year, they would seem to furnish the most immediately flexible index of the existing situation at any time for determining the need of emergency resources and for currently informing the public.

THE NEW HAMPSHIRE MEDICAL SOCIETY

THE PLACE OF PSYCHIATRY IN THE ADMINISTRATION OF CRIMINAL LAW*

BY WINFRED OVERHOLSER, M.D.†

PSYCHIATRY is coming into greater recognition by the profession as being not quite so isolated as it formerly was thought to be. For psychiatry, which is the specialty of medicine which deals with abnormal conduct, has its bearing on every other specialty in medicine as a whole, and in addition psychiatry deals with life in every sphere in which we can consider it.

In the school psychiatry is playing an important part in the recognition of mental defects and conduct disorders in young children. Even before the school age more attention is being given to peculiar conduct, and I need only mention the work done in Massachusetts by Dr. Thom on children in the habit clinics; and in industrial work psychiatry is coming to be recognized in fitting the man for the job and finding what job he is best suited for.

In the criminal law, too, psychiatry is coming into greater recognition, for criminal law deals with the conduct of individuals which is of such a nature that it infringes on the rights of the many. To a certain extent it may be considered abnormal if by abnormal we mean deviating from the accepted standard. I do not mean, of course, to say that anyone who transgresses the criminal law is necessarily a mental case. Such a statement would be far from the truth.

The legal profession is coming to realize that the old method of mass treatment and the old penal philosophy are not sufficient, that they are not protecting society to the extent they should. We see the development of individualizing methods, of special institutions such as the institutions which have been established in Massachusetts and in New York for the treatment of defective delinquents, of reformatories, parole, the indeterminate sentence, and so on.

The courts dealing with the criminal have always been interested, at least in theory, in the mental state of the defendant, for in our common law there are two elements requisite to every crime, that is, every common law crime. One, of course, is the overt act or the neglect to perform a prescribed act, as the case may be. The other is the intent, the mental state, the intent to do something which is known by the individual to be wrong.

Various tests of criminal responsibility,—and by responsibility, of course, I mean the capacity to form a criminal intent,—have been set up in times past, and some of them arouse our mirth somewhat at present. There is the old doctrine which the judges of over two hundred years ago set up of having "no greater intelligence than a wild beast", or the idea that an individual who could not count twenty pence or who did not know the name of his father or mother, was not competent; and then the idea that one who had no greater intelligence than a child of fourteen came along, but during the war we came to the conclusion that fourteen years came near being the average mental age! Then, in 1843, in the M'Naghten Case the rule of right and wrong was laid down on the psychological notions that prevailed at the time. Unfortunately, not all these tests have gone along with our knowledge of psychology, and the right and wrong test is still pretty much now in force.

Very curious mental gymnastics were engaged in by some judges in trying to interpret the decision of the House of Lords in M'Naghten's Case, but not all judges were satisfied. In 1860 some opinions against the right and wrong test were expressed, and it is to the credit of the State of New Hampshire that it was the first officially to throw over these artificial tests, tests which might sound well in theory but which could not well be put into practice; and in the famous case of State vs. Pike[1] (1870) the decision was handed down that the existence of mental disease was a matter of fact for the jury to determine and not a matter of law.

Judge Doe at that time wrote a dissenting opinion, and the following year (1871) his colleagues were carried further by his logic in the case of State versus Jones[2]. It is interesting to see what the court says in the case of State vs. Jones, and to see its enlightened attitude. The court comments on the satisfaction expressed by the medical profession over the decision in the case of State vs. Pike, and then it goes on to say: "—in a matter where we must rely to a great extent on the facts of science we have consented to receive those facts as developed and ascertained by the researches and observations of our own day instead of adhering blindly to dogmas which were accepted as fact and were erroneously promulgated as principles of law fifty or one hundred years ago".

Since this decision Alabama and Montana for instance have followed the reasoning laid down. Unfortunately most States adhere to the old right and wrong test which apparently seems to have been misunderstood by some judges themselves. At the present time, in this State

*Read at the Annual Meeting of the New Hampshire Medical Society, Manchester, May 29, 1929.

†For record and address of author see "This Week's Issue," page 494.

at least, the jury is given all the available facts and asked to consider for itself whether the act in question was the direct outgrowth of mental disease or unsoundness on the part of the defendant. So much for responsibility.

A question that has come up for a considerable period of time has been "How is the court, how is the jury, to be competently advised on these matters?" Let us assume that they are to be advised. How are they to receive facts on which they can depend? In the old days the judges, who decided very largely on the facts as well as on the law, were prone to call in friends of the court, men who could advise them, in whom they had confidence.

In the latter part of the eighteenth century, the powers of the jury were increased, and they became practically the sole judges of the facts. That meant that the facts were presented to them ex parte. The prosecution would present its evidence, and the defense its, also. Among these facts were the opinions of experts, persons who were supposed to know more than the ordinary individual. Immediately we find that these experts began to exhibit a certain degree of bias, which is a very difficult thing to overcome. So we soon find the courts using unkind words about the reliability of expert testimony, meaning expert testimony as they knew it,—that is, partisan testimony.

Various attempts have been made to correct what is recognized as an evil. Of course, it no doubt reflected on the expert and the law to have a spectacle of having two experts,—and the rules of evidence are much to blame,—testifying to diametrically opposite opinions; and in most cases where the practice prevails the jury simply disregards all the opinions of the experts and decides on knowledge, the basis of that well-known substitute for trained "common sense".

Some States have tried to limit the number of experts and have tried to provide for the appointment of experts by the court. Some judges have hesitated to choose experts, recognizing the fact that they do not know much about the experts' competency. In Colorado and Louisiana when the plea of insanity is made, the defendant must be committed to a State hospital where there can be long observation. Unfortunately the system of raising the defense of insanity means that the cases in which the plea will be introduced tend to fall into two general categories; one, in which the case is obvious; and the other, in which it seems to be good legal strategy to escape the penalty by putting in the plea of insanity and persuading the jury that the defendant is "insane".

The great disadvantages, then, of the prevailing system are in the first place,—and this applies to all States except Massachusetts,—lay initiation of the plea (for "recognition" of the case must start with a layman, the lawyer, court officer, jailer or judge); and secondly,—and this applies to most States,—that the people who testify before the court are partisans.

This situation used to exist in Massachusetts, and caused considerable perturbation among the medical profession. It was not until 1921, however, that thanks to the initiative of Dr. L. Vernon Briggs of Boston, a law was passed by the legislature which obviated at a stroke the disadvantages of which I have spoken.[3] This law provides that in any case where a person is indicted for murder in the first degree and in any case where a person is bound over for a felony who has been previously convicted of a felony, the defendant shall be examined before trial by two psychiatrists appointed by the State Department of Mental Diseases. This eliminates partisanship; the examiners are appointed by the State and not by the judges who may know nothing about qualifications. Again, the procedure is routine, and it is routine in cases where the issue most often comes up, namely those cases where the offense is punishable by death. Where expert testimony has come in for unkind words you will find it has been usually in murder cases. The individual is examined simply because he falls into the legal category. It is not because anyone says he is sane or that he is insane. The examiners are instructed to report on whether there is any mental disease or defect which might affect the criminal responsibility of the defendant.

Since this law has been in effect, now eight years, there have been something over 560 individuals examined. It is sometimes said that if the psychiatrists had their own way, they would make out every offender a mental case, but that criticism is wholly unwarranted. It may, in view of this charge, be interesting to know what these neutral examiners found. They have found of the 561 individuals, 37 who were definitely suffering from mental disease, and 14 more of at least doubtful mentality whose commitment was recommended. There have been 55 who have been found to be mentally defective delinquents; and 15 more on whom that dubious epithet of "psychopathic" has been conferred. So that 21 and one-half per cent. exhibited clearly some mental abnormality,—very different from 100%.

No rights are infringed by having this examination made. The defendant has the right of calling in his own experts; that is a right guaranteed by the Federal Constitution. The rather interesting thing is that the defence counsel have co-öperated in almost every instance and have recognized the fairness of the examiners so that we have had almost no case in which other experts have been called in,—we have eliminated the "battle of experts". Further than that, we have obviated the expense of a considerable number of trials and we have saved a considerable number of mentally ill persons from going through the ordeal of a trial. Justice has been done and society has been pro-

tected, for when an individual is indicted, he must be returned to the court from the hospital if he recovers mentally. If he is acquitted of murder by a jury by reason of insanity, and in a few instances we have had a formal verdict in which the parties have agreed, the defendant is committed for the term of his natural life and can only be released by the Governor on recommendation of the Department of Mental Diseases, so that if the individual is not punished it is at least seen that he is prevented from harming the community.

The Supreme Court of our State in a recent case said "It is a matter of general knowledge that there are in the service of the Commonwealth persons eminent for special scientific knowledge as to mental diseases. The examination under the statute may fairly be assumed to have been made by competent persons, free from any disposition or bias, and under every inducement to seek and ascertain the truth".[4] So much briefly about what we have done in Massachusetts to bring up the status of expert testimony.

In other States certain courts have established clinics of their own, thus having their own organization; and in many instances courts have clinics at hand on which they may call, these clinics being operated by the State or some university or organization. In a recent survey, the National Crime Commission found that nine and a half per cent. of the courts had some regular psychiatric service.[5]

It is important that the courts should know something of the individual's mental make-up in order that they may properly dispose of the case either by fine, probation, or by commitment to the proper institution. Of course, it is absurd for any individual to assume that he can set up in advance the period in which reformation or cure will take place. The fallacy of predetermined fixed sentences is pretty well recognized, though not always by legislatures.

It is desirable as well to have psychiatric services available in penal correctional institutions. This fact was recognized before the establishment of clinics, and much of this was due to Dr. A. Warren Stearns who started this work in Massachusetts in 1914. The value of knowing the man's make-up and knowing the proper industry to which to assign him, and the proper discipline to mete out to him, and the value of this information to parole boards are now being recognized.

Rather more recently in Massachusetts we have undertaken the examination of convicted persons in the county jails. These may seem to be trivial institutions, but for the United States as a whole they receive ninety per cent. of the committed cases, and the individuals in county jails are notorious repeaters. Then, too, it is important to know what sort of individual we are getting there, whether their offending, repeated or not, is due to a fault of their own make-up or to a fault of the system.

It is significant to note that Massachusetts has just appointed as its Commissioner of Correction a psychiatrist, Dr. A. Warren Stearns. New York has also done this, and a third State is seriously considering the same thing. In other words, the importance of psychiatry in the penal institutions is being recognized by the executives of States, business men, men who are interested in the efficient working of institutions.

Of course, the proposal of Governor Smith of New York that the matter of sentences be taken out of the courts and lodged in a special board of sociological and psychiatric experts attracted a great deal of attention. Such a proposal is far from realization, but it seems logical in many ways, and it would not be at all strange if we see such a development in the course of twenty or twenty-five years.

Of course, it is obviously desirable to fit the treatment to the offender, to make the penal treatment fit the criminal, and this is necessary both in justice to the individual offender and to society. Many individuals are being released altogether too soon, whereas others are kept longer than is necessary because their sentences, prescribed long in advance, call for it.

Psychiatry makes no claim to solve the problem, but it does claim,—and its claims are being recognized even outside of the medical profession,—that it has something to contribute to the intelligent administration of our criminal law; to that extent it stands ready to do its share in doing justice to the individual offender while at the same time better protecting society.

REFERENCES

1 State vs. Pike, 49 N. H. 399.
2 State vs. Jones, 50 N. H. 369.
3 Ch. 415, Acts of 1921. Subsequently amended, and now found as Ch. 105, Acts of 1929. For a detailed study see Overholser, W., "Psychiatry and the Massachusetts Courts as Now Related" to appear in "Social Forces", September, 1929.
4 Commonwealth vs. Devereaux, 257 Mass. 391.
5 See Overholser, W., "Psychiatric Service in Penal and Reformatory Institutions and Criminal Courts in the United States", Mental Hygiene, XII, no. 4, Oct., 1928, pp. 801-838.

Discussion

Dr. Edgar O. Crossman, Washington, D. C.: *Mr. President and Fellows*—I regret that every lawyer in New Hampshire wasn't present to hear this splendid paper by Dr. Overholser. I am sure it is a paper that will be of tremendous value to us as physicians. It is along the line to which we certainly need to give serious consideration. I think we have made ourselves many times feel humiliated at the results of these trials and battles of mental experts before the court.

This paper is so clear, so clean cut and well presented that it discussed itself as the doctor went along with it. There is so much heavy

artillery here today that I do not think I will take your time. When Dr. Stearns was elected dean of Tufts Medical School it was announced in a paper of Boston that the noted criminologist had been elected dean of Tufts Medical School. Then he was appointed commissioner in charge of all prisons and he has given a vast amount of work and study to that problem.

Dr. Briggs, who I think has done more for psychiatry in New England, than anyone else, was the father of the law which has simplified and made more respectful the handling of criminal cases in Massachusetts. I hope Dr. Dolloff is here and some of the other men from the State Hospital, and with all these leaders in the field of psychiatry present I am sure this paper will be made even more interesting for the members of the Society.

DR. A. WARREN STEARNS, Boston, Mass.: I must tell you of a famous New Hampshire decision. In Colonial times a justice of the Supreme Court of New Hampshire was criticized because his decision did not coincide with the long precedent. To this criticism he replied, "Every tub must stand on its own bottom"; thereby showing the same courageous individualism of which Dr. Overholser has just given you an example.

It has been very gratifying to see how this law has taken hold in Massachusetts. For years I made my living testifying as an expert and if a murder trial took place in Massachusetts where the defence was insanity I felt slighted if not employed by one side or the other. The efficacy of this law is shown by the fact that I have not testified at a murder trial for two years. I am obliged to applaud the law even though it has taken away my bread and butter. No more is needed to justify the employment of impartial experts.

I would like to say a word as to the responsibility of practicing physicians in this matter which may seem quite remote from their daily life. Every criminal has a doctor, whether he is a murderer or a vagrant. This doctor usually knows him well and so can be of tremendous help not only in working up the case, but in advising as to what should be done. It is not necessary to say whether the patient has dementia praecox or manic depressive insanity. For practical purposes it is often enough to be able to say that the case is mental and to support this with adequate data.

The legal theory is that in the conflict between two opposites the resultant is the truth. This is just opposite from doctors' methods of differential diagnosis. I think that with your contact with offenders and their families and lawyers you can have a very subtle and wide-spread influence along lines making for socialization of procedure. There is a tendency for doctors to confine their interest to objective conditions and to neglect the personality of their patients. In this they are like the Irish girl who was given money to go to the theatre. She came back in half an hour and when asked how she liked the show said, "It was very good but they pulled it up out of sight and some people came in and started talking about something which didn't concern me, therefore I came home." So the doctor who sees only the boil or broken finger and not the underlying personality of his patient, misses the most romantic and fascinating part of his opportunity.

I am in entire sympathy with the ideas Dr. Bowler has expressed. You are not alone in your desire for better medical service in rural districts. To a certain extent Tufts and Harvard have responsibility for the same territory, but we have recently made up our minds to do something quite different and have definitely determined that our function is to train men for the actual practice of medicine in New England. Therefore, for the past two years our enrollment has been restricted to residents of New England and we have given preference to students living outside of Metropolitan Boston.

You will see by this that Tufts is trying to respond to the effort that you are making to provide improved medical service for rural districts.

DR. L. VERNON BRIGGS, Boston: *Mr. President and Members*—The subject has already been so fully covered that all I can do is to give you a little history, so that you can report what Massachusetts has done.

Until recently it made all of us physicians feel a bit squeamish to be called to testify in court on a criminal case, knowing that our testimony would probably be looked down upon by the court, the jury and the public. It finally got to the point where two experts graduates from the same medical school might be called upon to testify upon different sides of a case and their testimony made to appear, from a legal standpoint, entirely contradictory. Indeed it seemed impossible to get an unbiased opinion, for if the defense thought they had a mental case for the jury to consider and employed an "expert", the District Attorney was bound to counteract their testimony by putting on another "expert". Of course these "experts" were not always experts, but the judge might allow them to testify in that capacity.—I have known of an old fashioned "expert" who would go to the jail and get a history of the prisoner through the bars and interview the jailors and testify upon that evidence alone.

Dr. Overholser did not tell you what is now done to ascertain the mental condition of the criminal. Two experts are appointed from the Department of Mental Diseases to examine the individual (for a matter of $4 apiece)—and they usually have to make several visits before they can ascertain his mental condition, make the mental tests and determine the I. Q. They

have a social worker who looks up the family and personal history from the birth up, interviewing the employers, school teachers, neighbors and all others concerned. They get a complete history of the person examined, so that when they render their report to the clerk of the court it contains all the information to be ascertained. The clerk files that report and it is open to the prosecuting attorney, to the defense and to the judge, so that no expert is likely to have the courage to testify against the decision of the Department of Mental Diseases —which is one of the reasons why the "expert" witness has been eliminated in Massachusetts.

The present law in Massachusetts was considered for a long time, and I had it drawn up in many forms before the final bill was submitted to the Legislature. I asked the advice of such men as Dr. William Healy, of the Judge Baker Foundation—who said it was unconstitutional, that nobody would submit to examination or the district attorney would refuse to permit the examination, Judge Cabot, who said it did not go far enough. I took the bill to Judge Murray and other judges, and they said that it was constitutional. The law passed in 1921, and since that time I think there have not been more than two cases who have declined to be examined, and their objections were soon overcome. In the end the prisoner always submits to examination, the lawyer for the defense makes no objection, and the district attorneys, who appeared against the bill before it was passed are now its strongest supporters.

This bill had a hard ride in the Legislature; its opponents thought they had defeated me, as the bill provided no appropriation to carry out its provisions after it had been passed. I then called all the experts together—men standing high in the profession, who had been making $50 or more a day when they had been called to testify in court. I knew how they felt, and I asked them if they would be willing to examine these cases for nothing until we could get a provision to carry out the law. To this they unanimously agreed, and continued for two years to make these examinations without charge to the State.

This law has worked well. 80% of those examined have been found to be normal and responsible for the crimes with which they have been charged. So the statement that the psychiatrist was always sure to find the man insane is untrue.

Now in the 20% of cases examined—it has been shown that there is a saving to the State of many thousands of dollars. The expense of a murder trial amounts to $30,000, so an average saving of over $10,000 is easily made on each case—a great economy to the State.

Now as to the safety of the public—Without this examination many of these cases would be convicted of manslaughter and released when they had served their terms; but when they are found to be mentally defective before trial they are confined to a State Hospital for life. To safeguard this law it is required that before any step can be taken for discharge from an insane hospital, a recommendation must come from the superintendent of the hospital which has the patient in charge; that recommendation goes to the Department of Mental Diseases and then to the Governor and Council. No case can be pardoned without the recommendation of the superintendent of the hospital and the Department of Mental Diseases—so we are safeguarded against political influences.

I think you should take some action in New Hampshire to have a similar law in your State. Dr. Overholser and I were recently in Kansas speaking to a joint meeting or conference of the State Medical and Bar Association on this Massachusetts law. A lawyer from the Federal Court who came there said that he did not believe in psychiatrists. Nevertheless, after the meeting was over, the Bar Association of Kansas and the Kansas Medical Society voted to petition the incoming legislature to pass a law similar to ours in Massachusetts and he was one of the first to vote in favor.

Now I think it would be well for this Society to vote, before the meeting comes to a close, to petition the Legislature to pass a law to save the medical profession from being made ridiculous by being pitted against each other in criminal trials, to save the State much unnecessary expense, and to protect the public by confining irresponsible individuals who have once broken the law where they will be properly treated and can do no further harm. And further, if your Society could confer with the Bar Association, I should not be surprised if that Association would also vote at the end of the conference to memorialize the Legislature for the passage of such a law.

DR. CHARLES H. DOLLOFF, Concord: As one of New Hampshire's few and humble psychiatrists, I wish to congratulate this Society on having heard such an able paper upon a subject of great interest to me. As you probably all know, New Hampshire has a law whereby any person indicted for a crime may be sent to our State Hospital for observation until such time as the Superintendent is prepared to make a report to the court as to his findings. Almost invariably this report is accepted by the prosecution and the defense, but once in a while the attorney for the defense is not fully satisfied and feels that he has a case where he has a chance of proving otherwise than what the report states, so we come before the jury.

It is sometimes difficult to eliminate from the minds of these defense lawyers the feeling that the State Hospital psychiatrists are under the domination of the Attorney General, and the Attorney General wanting to convict, the state psychiatrists are trying to help him, but that

feeling is rare and only a few cases are contested after our report goes in. However, I wish to say that I recognize that Massachusetts has produced a superior product, and if it does not violate the constitutional rights of the defendant to get all the assistance he can from any source he chooses, then I would say it was excellent. It seems to be working out very well in Massachusetts. Whether it would be as successful in a small state like ours, I do not know, but we would welcome such a law being admitted to our statutes if there is a feeling that the present law is not getting the results desired.

It seems to me that the important need after all is a more careful study of those recidivistic criminals who never come under the purview of a psychiatrist but go out of prison only to renew their life of crime.

I agree that every criminal should be given a mental examination and psychometric rating. I hope this can eventually be brought about in New Hampshire.

In closing, I would like to ask Dr. Overholser whether the courts in Massachusetts still hold that a diagnosis of psychopathic personality is not an excuse for crime, and if so, whether the great State of Massachusetts does not need a Judge Doe to further unfetter its psychiatrists.

DR. WINFRED OVERHOLSER, Boston (closing): That decision stands. It is a fact that the Supreme Court of Massachusetts says that psychopathic personality cannot be considered as diminishing responsibility.

DR. DOLLOFF: Do the psychiatrists agree to that?

DR. OVERHOLSER: I should say decidedly not. Psychopathic personality while probably decreasing "responsibility" should in many cases simultaneously increase the time the individual should be restrained.

There is one other point in closing,—in the few capital cases in which the matter of insanity which has been reported by the Department of Mental Diseases goes to the jury, the jury usually does not leave the box; the judge instructs them to bring in a verdict of not guilty by reason of insanity, thus relieving the jury of having to decide upon medical facts, a thing which they as laymen are not competent to do.

DR. D. E. SULLIVAN, Concord: I would move that the New Hampshire Medical Society in general session assembled at its annual meeting heartily endorses the Massachusetts law in its application to psychiatry in criminal cases and directs its Committee on Public Policy and Legislation to draw up a bill to present to the Legislature of 1930 similar to the law on the statute books of Massachusetts. Motion seconded, and carried.

REPORT OF A CASE OF GUNSHOT WOUND OF THE ABDOMEN

BY ELMER M. MILLER, M.D.*

ON October 20, 1926, a negro prize-fighter, 26 years of age, was brought to Grafton County Jail because of an atrocious assault committed on a white girl. The next morning he asked the turnkey, Mr. F. to let him telephone to his wife. Mr. F. was seventy-five years old, but because of his experience as policeman and traffic officer; his versatility and good judgment; in spite of his age, he was considered an efficient turnkey.

After the morning work about the jail was completed Mr. F. allowed the negro to come from his cell into the jail lobby, where the telephone was located. The negro requested Mr. F. to do the talking and Mr. F. said, "No, I will call your wife to the phone and you can talk with her yourself." The line was busy and as Mr. F. was hanging up the receiver the negro struck him hard with his fist on the side of the head, which stunned, but did not knock Mr. F. down. He grappled with the negro and they fought for twenty minutes, each striving for supremacy. But youth would be served, the negro finally overcame Mr. F., took his gun away from him and demanded the keys of the jail. Mr. F. refused to give them up and the negro shot him through the abdomen, a 38 calibre bullet entering just to the left of the umbilicus and emerging just to the left of the vertebral column, nicking out a little piece of the body of the vertebra.

This knocked Mr. F. off his feet. The negro then attempted to unlock the door with the keys. At this time the superintendent, Mr. P., arrived on the scene, opened the outside jail door and was instantly greeted with a shot from the negro's revolver, breast high, but which fortunately glanced on a rung of the inside grated door; the bullet spattered on Mr. P.'s vest, but did not penetrate his skin. While this was going on, Mr. F. crawled back into an adjoining room, found and loaded a shot-gun, which he discharged into the negro's head.

Mr. F., bleeding profusely, was tenderly carried up to the operating room of the hospital and our operating crew summoned. A long incision was made at the bullet entrance wound, bleeding points were quickly caught with forceps, tied, and pieces of undigested food, such as potato, sausage and egg were picked out of the abdominal cavity. There were many long and irregular tears in the intestines, which were sewed tightly with one layer of sutures, in such a manner as not to pucker the gut. By this time the intestines were all outside the abdomen on wet towels, they were washed thoroughly, returned to the abdomen and four diverging drains inserted. The incision was then closed except for the drainage openings. One drain was inserted in the exit wound and that was the one which did most of the draining. In the next twenty-four hours two separate 1000 cc. normal salt solutions were administered intravenously, one of them to replace blood lost and the other to replace body fluid which was being lost through drainage.

Mr. F. was profoundly shocked and in a very low state for three days. There was considerable distention, areas of hardness, but no general peritonitis.

*For record and address of author see "This Week's Issue," page 494.

On the sixth day his bowels moved freely of their own accord. The drains were gradually removed and Mr. F. made an uneventful recovery and for the past year has been traffic officer in his native village.

It would appear that when rapidity of action is necessary that the chain suture is reliable: that adequate drainage is necessary, and that in such wounds appropriate treatment for shock is particularly desirable.

MISCELLANY

NEW HAMPSHIRE MORTALITY STATISTICS: 1928

The Department of Commerce announces that the 1928 death rate for New Hampshire was 1,412.7 per 100,000 population as compared with 1,391.0 in 1927.

Increases in rates (per 100,000 population) from those of the preceding year were from the following principal causes: diseases of the heart (291.0 to 300.9), nephritis (95.4 to 103.7), cancer (134.7 to 140.4), and tuberculosis, all forms (64.6 to 67.3). Increases were shown also for congenital malformations and diseases of early infancy (82.2 to 87.5), appendicitis and typhlitis (11.9 to 16.4), and typhoid and paratyphoid fever (0.7 to 2.2).

The death rate from all accidental causes increased from 62.9 to 78.3, the individual types of accidents showing the greatest increases being accidental drowning (8.4 to 14.3), and accidental falls (13.2 to 17.8).

Among the decreases in rates from 1927 to 1928 were those from the following principal causes: cerebral hemorrhage and softening (160.0 to 148.2) and diabetes mellitus (30.3 to 27.9). Decreases were shown also for diseases of the arteries, atheroma, etc. (63.5 to 56.6), pneumonia, all forms (98.0 to 93.0), acute anterior poliomyelitis (2.9 to 1.8), and meningococcus meningitis (1.5 to 0.7).

The estimated population in 1928 was 456,000 and in 1927 was 455,000.

Note: Statistics next page.

NEW HAMPSHIRE SURGICAL CLUB—32ND ANNUAL MEETING

HANOVER INN, HANOVER, NEW HAMPSHIRE

MORNING PROGRAM

9 A. M. September 9, 1929. Operative Clinic, Mary Hitchcock Hospital. By the staff.

11 A. M. A clinical pathological discussion. Opened by H. N. Kingsford, M.D.

AFTERNOON PROGRAM

1:30 P. M. Annual business meeting, including election of officers.

President's Address, Daniel C. Norton, M.D.

Paper: Collapse of the Lung, Carleton Metcalf, M.D. Discussion: David W. Parker, M.D., Emery Fitch, M.D.

Paper: Operative Treatment of Chronic Dacryo Cystitis, Adolphe Provost, M.D. Discussion: Pierre Bergeron, M.D., Raymond Marcotte, M.D.

Paper: Injection Treatment of Varicose Veins, John F. Gile, M.D. Discussion: Richard Robinson, M.D., C. E. Butterfield, M.D.

Banquet at 6:30 P. M. Ladies and guests invited. Toastmaster, Harry O. Chesley, M.D.; Daniel C. Norton, M.D., J. F. Gile, M.D. Speaker to be announced.

Demonstration of an Intelligence Test by Charles Dolloff, M.D., assisted by John Murray, M.D.

RECENT DEATH

DR. JAMES THORNTON GREELEY

Dr. James Thornton Greeley, 67, inventor of the Greeley unit used by surgeons of the allied armies during the World War, died in Nashua, August 29. During the war, Dr. Greeley served with the Red Cross in Palestine.

He was born in Thornton's Ferry July 19, 1862, graduated from Massachusetts Institute of Technology and the University of Maryland and had practiced in Nashua since 1895. Matthew Thornton, who signed the Declaration of Independence for New Hampshire, was one of his forbears. Dr. Greeley took postgraduate courses in Europe.

The Greeley unit consisted of a combination hypodermic needle and carrier making possible instantaneous hypodermic medication. This was adopted by several of the allied armies.

During the Spanish War he was chief surgeon in a New Hampshire regiment, retiring with the rank of major. He was with the Red Cross in the vicinity of Palestine in the World War.

He was a trustee of the Nashua Memorial Hospital, was a member of the staff of that hospital and of St. Joseph's Hospital.

His other affiliations included membership in the American Medical Society, New Hampshire Medical Society, New Hampshire Surgical Club, and the Nashua Medical Society.

Survivors include the widow; two sons, James and Cyrus Greeley; one daughter, Mrs. Margaret DeKalk, well-known artist, all children of his first wife, who was Miss Florence Richardson, daughter of Rev. Cyrus Richardson, D.D. Doctor Greeley was a member and warden of the Church of the Good Shepherd.

Cause of death	Deaths in New Hampshire			
	Number		Rate per 100,000 estimated population	
	1928	1927	1928	1927
ALL causes 1/	6,442	6,329	1412.7	1391.0
Typhoid and paratyphoid fever	10	3	2.2	0.7
Malaria	1	-	0.2	-
Smallpox	-	-	-	-
Measles	14	11	3.1	2.4
Scarlet fever	20	20	4.4	4.4
Whooping cough	24	28	5.3	6.2
Diphtheria	26	20	5.7	4.4
Influenza	179	173	39.3	38.0
Dysentery	2	1	0.4	0.2
Erysipelas	11	15	2.4	3.3
Acute anterior poliomyelitis	8	13	1.8	2.9
Lethargic encephalitis	4	4	0.9	0.9
Meningogoccus meningitis	3	7	0.7	1.5
Tuberculosis (all forms)	307	294	67.3	64.6
Of the respiratory system	262	232	57.5	51.0
Of the meninges, central nervous system	14	25	3.1	5.5
Other forms	31	37	6.8	8.1
Syphilis 2/	47	45	10.3	9.9
Cancer and other malignant tumors	640	613	140.4	134.7
Rheumatism	14	23	3.1	5.1
Pellagra	2	1	0.4	0.2
Diabetes mellitus	127	138	27.9	30.3
Meningitis (nonepidemic)	11	17	2.4	3.7
Cerebral hemorrhage and softening	676	728	148.2	160.0
Paralysis without specified cause	23	8	5.0	1.8
Diseases of the heart	1,372	1,324	300.9	291.0
Diseases of the arteries, atheroma, aneurysm, etc.	258	289	56.6	63.5
Bronchitis	53	37	11.6	8.1
Pneumonia (all forms)	424	446	93.0	98.0
Respiratory diseases other than bronchitis and pneumonia (all forms)	47	39	10.3	8.6
Diarrhea and enteritis	59	63	12.9	13.8
Diarrhea and enteritis (under 2 years)	43	47	9.4	10.3
Diarrhea and enteritis (2 years and over)	16	16	3.5	3.5
Appendicitis and typhlitis	75	54	16.4	11.9
Hernia, intestinal obstruction	57	55	12.5	12.1
Cirrhosis of the liver	20	29	4.4	6.4
Nephritis	473	434	103.7	95.4
Puerperal septicemia	13	17	2.9	3.7
Puerperal causes other than puerperal septicemia	42	40	9.2	8.8
Congenital malformations and diseases of early infancy	399	374	87.5	82.2
Suicide	59	62	12.9	13.6
Homicide	6	3	1.3	0.7
Accidental and unspecified external causes	357	286	78.3	62.9
Burns (conflagration excepted)	13	15	2.9	3.3
Accidental drowning	65	38	14.3	8.4
Accidental shooting	9	4	2.0	0.9
Accidental falls	81	60	17.8	13.2
Mine accidents	-	-	-	-
Machinery accidents	10	8	2.2	1.8
Railroad accidents	27	29	5.9	6.4
Collision with automobile	4	12	0.9	2.6
Other railroad accidents	23	17	5.0	3.7
Street-car accidents	-	2	-	0.4
Collision with automobile	-	-	-	-
Other street-car accidents	-	2	-	0.4
Automobile accidents (exluding collision with railroad trains and street cars)	76	71	16.7	15.6
Injuries by vehicles other than railroad trains, street cars, and automobiles 3/	15	5	3.3	1.1
Excessive heat (burns excepted)	2	3	0.4	0.7
Other external causes	59	51	12.9	11.2
All other defined causes	566	590	124.1	129.7
Unknown or ill-defined causes	21	38	4.6	8.4

1/ Exclusive of stillbirths.
2/ Includes tabes dorsalis (locomotor ataxia) and general paralysis of the insane.
3/ Includes airplane, balloon, and motor-cycle accidents.

See New Hampshire Mortality Statistics on preceding page.

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 15361

PAIN IN THE RIGHT FLANK AND SUBSEQUENTLY COMA

MEDICAL DEPARTMENT

An American widow fifty-eight years old entered September 30, comatose. The history was given by her daughter.

Three days before admission she went to visit her daughter in perfect health except for a subsiding attack of laryngitis. She had been subject to such attacks for many years. The present one was exactly like the others. She vomited once that day. The vomitus contained food eaten three days previously. The morning after her arrival her hoarseness and cough were better, but she began to have pain in the right flank just above the hip to the shoulder blade, coming on inspiration, so that her breathing was shallow. This grew worse and by afternoon was so severe that a doctor could not make satisfactory examination or diagnosis. He gave a hypodermic. The patient had a normal sleep from which she awoke with intense frontal headache, relieved after she took a pill which the doctor had left. She became more and more drowsy and by midnight could not be roused, although she moved and resisted passive movement. The daughter did not know whether the patient had had fever. After she became comatose she was flushed, sweating, and incontinent of urine. The urine was scanty and dark but never red. There was no history of poisoning.

She had always been well. Several years before admission a doctor told her her heart was enlarged and her blood pressure high. She had not had dyspnea, edema or cough. The attacks of laryngitis to which she had been subject for many years consisted of hoarseness, often aphonia, difficulty in breathing and slight productive cough. Each attack lasted about two days. After it she was perfectly well. Since most of her teeth were pulled several years before admission she had complained of indigestion—epigastric distress occurring half an hour after meals and lasting an hour and a half to three hours, relieved by soda and ginger. This was accompanied by nausea but never by vomiting. She had always drunk much tea, two or three cups at each meal and a cup or two in the afternoon. Her daughter knew of no abnormal stools or recent loss of weight.

Clinical examination showed a small, thin, frail woman lying flat in bed, very hyperpneic, occasionally groaning and placing her hand on the right side of her neck, unresponsive except that she resisted manipulation in the physical examination. Lips dry and scaling. Mouth very dry. The few remaining teeth carious and worn. Ears negative. The neck resisted flexion. Stiffness was questionable. The right lung showed questionable pleural sounds, probably not râles. There was a to-and-fro friction rub over an area the size of the palm over the right sixth rib and interspace in front. The location of the apex impulse of the heart is not recorded. The left border of dullness was 7 centimeters to the left of midsternum, 1 centimeter outside the midelavicular line, right border 2.5 centimeters, supracardiac dullness 5 centimeters. Sounds of fair quality. Rate at times comparatively slow, 90, with runs of tachyeardia, 160. Rate reduced by vagal compression. No definite murmurs made out. *Pulsus alternans* heard with the blood pressure apparatus. Abdomen held rigid, resisting palpation. Pupils pinpoint from morphine medication before admission; otherwise normal. Fundi showed no choking of the discs. Arteries not tortuous. Slight nicking of veins. Cataracts of both eyes prevented perfect visualization of the fundi. Tendon reflexes hyperactive. Kernig questionably positive.

Amount and specific gravity of urine not recorded, a slight trace of albumin at the single examination, diacetic acid strongly positive. Blood not recorded except 4,300 leukocytes. Blood sugar 286 milligrams. Non-protein nitrogen 42.

Temperature 98° to 100.4°. Pulse 100 to 122. Respirations 40 to 48.

The patient was very dehydrated. Before any diagnostic procedure was instituted she was given fluids and intravenous glucose. Her breathing became more quiet and her urine free of diacetic acid.

The day of admission a lumbar puncture between the third and fourth lumbar vertebrae gave 50 cubic centimeters of very cloudy, questionably yellow fluid, initial pressure 450, dynamics normal, 220 cells, about 90 per cent polymorphonuclears and 10 per cent lymphocytes, no red cells, alcohol and ammonium sulphate very strongly positive, Wassermann anticomplementary, total protein 143, colloidal gold 1111122210.

Two hours after the lumbar puncture the patient died of respiratory failure.

DISCUSSION

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

Of course those attacks show a good deal more than laryngitis. Laryngitis ought not to give

such difficulty in breathing or any considerable cough.

The essential things we have to think of up to the physical examination are the history of hyperpnea, high blood pressure and enlarged heart, a fairly quick occurrence of coma following pain in the chest and headache, and some attacks of laryngitis that I do not see how we can connect in any way with the other facts in the case. If we had no other facts than these and had to guess I should say it was cerebral hemorrhage, although that would not explain in any way the pain in the side and would not satisfactorily explain the headache.

NOTES ON THE PHYSICAL EXAMINATION

They suspect that the stiffness of the neck is voluntary and not involuntary spasm.

Was there no urinary sugar?

MISS PAINTER: No, none.

DIFFERENTIAL DIAGNOSIS

I suppose we are perfectly safe in saying we are dealing with a disease of the brain. The only other thing one ought to think of is uremia. It seems to me we have no sufficient evidence of that on the part of the nervous system or the urine, although I do not believe the kidneys are sound. Unless there has been some poison taken, which I think we can throw out on the history, or good evidence of uremia or diabetes, which I certainly think that we ought to be able to exclude, we have a brain case.

Ought we to think of meningitis first, then tumor or abscess as a possibility, and then vascular disease? Vascular disease can be ruled out, because no one ever got such a spinal fluid as that with a purely vascular brain disease. For brain tumor we have not much evidence that I see. She has not the condition in the eyes that we would expect, although the cataract makes that observation a little less certain. She has no focal paralysis. Her headache has been of very brief duration. She has never had vertigo that we know of, or other symptoms suggesting chronic intracranial increase of pressure. The only thing that made me think of tumor is sudden death after tapping the spinal cord, which of course does happen when a tumor causes the brain to settle down into the foramen magnum after a tap. On the whole it seems to me we have no good reason to say tumor and still less reason to say vascular disease.

With those exclusions and the positive spinal fluid I do not see how we can say anything but meningitis. Meningitis seems to account for everything except the pain in the side, which may have been from a complicating pleurisy or pneumonia, as we have physical signs suggesting pleurisy. Why are the leukocytes so low? I do not know. That is against the diagnosis of meningitis, unless it is tuberculous meningitis, and we have not anything in the history or physical examination to suggest that. The kind of cells, polymorphonuclears, is right, but the number, 220, is smaller than we expect. I do not know how we can account for that. Of course we can think of inflammatory changes other than meningitis, conditions which connect with the spinal fluids and give such a fluid as that,—brain abscess for instance, or septic thrombosis of a sinus; but it does not seem to me that we have anything to make us suspect those conditions. Brain abscess we suspect when we can find some cause for it. It should be either in the ear or in the lungs, and we have not anything suggestive of those things. Still less have we any symptoms of ear disease to suggest a cause for sinus thrombosis. I have never seen a spinal fluid like this in either sleeping sickness or poliomyelitis, and the rest of the clinical picture is not like either of those two so far as I know. According to the record the neck may be stiff. There may be a Kernig. She certainly has fever, and with that spinal fluid I do not see what else we can say but meningitis. Apparently they found no organisms in the fluid. Nothing is said about that. They do not say that they did not see anything further or that they did. Perhaps some facts are withheld. If they did not find any organisms we should say it was hard luck. But we have to make the same diagnosis in any case.

A STUDENT: Did she have diabetes?

DR. CABOT: On the basis of the facts before me I should say no.

A STUDENT: Why the high blood sugar? Was it due to intravenous glucose? Which came first?

DR. CABOT: That is a very good point. But I do not see how we can say diabetes unless we have sugar in the urine. The high blood sugar does not tell much under these conditions.

MISS PAINTER: The glucose was given and the blood sugar taken both on the same day. The hours are not given.

A STUDENT: She probably had the blood sugar taken after the glucose.

DR. CABOT: There was probably not much time between.

A STUDENT: She had cataracts in her eyes and she did not have a leukocytosis and did not react with any fever during the infection.

DR. CABOT: Does that help you to say diabetes?

A STUDENT: It makes you think there was something that kept her from reacting the way she ought to with an acute infection.

DR. CABOT: It does not make you think of diabetes particularly. I think the cataract is a very good point suggesting diabetes, and the blood sugar is certainly high.

A STUDENT: Was there starvation enough to account for the diacetic acid?

DR. CABOT: I should say that diacetic acid in itself had no significance.

A STUDENT: She has not been starving more than three days.

DR. CABOT: The hyperpnea as well as the cataract are good points, such as you would expect with diabetes, and never with meningitis.

A STUDENT: She had a to-and-fro friction rub.

DR. CABOT: I think there is pleurisy. I do not think that matters much as a cause of death. We have no good evidence of pneumonia. Pleurisy itself would not kill her.

A STUDENT: Could it be pericarditis?

DR. CABOT: That is conceivable, but the record is not clear. A to-and-fro friction rub might mean a pericardial friction or a pleural.

A STUDENT: Do you explain the pleurisy on the basis of dehydration alone?

DR. CABOT: I do not think that is a very safe thing to do, especially when there has been a pain in that region.

A STUDENT: Is the coma with flush characteristic of diabetic coma?

DR. CABOT: I should not say so. We see all those things in many other comas.

A STUDENT: Do you attach any significance to the statement that the vomitus contained food eaten probably three days previously, and also the history of epigastric distress?

DR. CABOT: If those symptoms point to anything they point to ulcer, and I cannot connect ulcer with any of the symptoms with which she died. I think it is right to pay attention to those and to guess at healed or active ulcer in this case, but not with any particular relation to her death.

A STUDENT: How do you explain the laryngitis?

DR. CABOT: I do not explain it.

A STUDENT: What possibility of malignancy is there?

DR. CABOT: I should not suppose there is any. I never heard of malignancy of the larynx that came and went in this way. It comes and stays, so far as I know.

I do not know whether we are ever going to know about this question of diabetes. It is a really good case to see whether post-mortem examination is going to help us to establish a doubtful diabetes. It does not always give us proof. On the whole I will commit myself against diabetes, although I see quite a number of points in its favor.

A STUDENT: Why did she die so quickly? Would meningitis kill a woman in three days with so few cells?

DR. CABOT: Yes, there are very few cells; but that has nothing in particular to do with the quickness of death.

A STUDENT: Do you ever see a very cloudy fluid with only that number of cells?

DR. CABOT: Yes. There are other causes of cloudiness of fluid without cells. But I am bothered by those low cells. I do not understand that.

A STUDENT: Isn't her temperature low for meningitis?

DR. CABOT: No. You get any kind of temperature with meningitis.

BACTERIOLOGIC REPORTS

Smear of the lumbar puncture fluid showed millions of Gram-positive diplococci, possibly pneumococci.

Culture showed Type IV pneumococcus.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Pneumococcus meningitis.

DR. RICHARD C. CABOT'S DIAGNOSIS

Meningitis.

ANATOMIC DIAGNOSES

1. *Primary disease.*

Cavernous sinus thrombosis, pneumococcus.

2. *Secondary or terminal lesions.*

Purulent meningitis, pneumococcus.
Bronchopneumonia.

DR. TRACY B. MALLORY: This woman had a very marked diffuse pneumococcus meningitis with a dense purulent exudate covering the entire brain. It is the second or third case we have had in the past two years where a severe purulent meningitis was present and very few cells have been found in the spinal fluid. This purulent infiltration extended down as far as the cervical cord. We were not permitted to examine the lower cord in the case, but it is possible that it was blocked at some lower point, although in one other similar case where we did examine the entire cord we were unable to find the block.

DR. CABOT: The dynamics were all right apparently?

DR. MALLORY: Yes.

The left cavernous sinus showed thrombosis, and a few drops of pus could be expressed from it on pressure. There was also a fibrinous pleurisy at the right base and a patch of consolidation at the right lower lobe. Whether the pneumonia antedated the meningitis or vice versa I cannot say. I am inclined to say the thrombosis of the cavernous sinus was probably the first lesion, and produced no local symptoms. Then came the meningitis, and finally a terminal pneumonia. There was no evidence suggesting diabetes, although we cannot absolutely rule that out post mortem.

DR. CABOT: Was there no evidence of ulcer?

DR. MALLORY: No. The stomach was negative.

A STUDENT: Can you explain the laryngitis?

DR. MALLORY: The neck was not dissected. I think that there is no commoner disease than laryngitis.

DR. CABOT: I wish you would talk a little more about sinus thrombosis. I know very little

about the subject. I am not accustomed to seeing it as a primary thing. Was it an infectious process starting there?

DR. MALLORY: No; I think one has to trace the infection back farther than that. In most cases a cavernous sinus is infected from lesions of the ethmoidal sinuses or from septic lesions of the upper portion of the face, the upper lip, the nose, or the orbit. I think it is probable that some minute septic focus of that sort was present. The ethmoids however were negative. It is distinctly unusual for cavernous sinus thrombosis not to have produced more local symptoms.

DR. CABOT: How big was the heart?

DR. MALLORY: It was small, 265 grams. The kidneys were normal in size. There was no passive congestion.

A STUDENT: Was the meningitis secondary to the sinus thrombosis?

DR. MALLORY: In all probability. That is the common sequence.

A STUDENT: What is the frequency of cavernous sinus infection like an ethmoidal sinus infection with pneumococcus?

DR. MALLORY: Very high, with disease either in the sinuses or the mastoids. I am not sure whether it would run first. I think pneumococcus first, with streptococcus second and staphylococcus third. I am only guessing at those figures, but I do know the pneumococcus is very high, probably the most frequent of all.

DR. CABOT: I believe you can say that the cause of the low leukocytes in the blood and the low leukocytes in the spinal cord was the same, whatever it was. Something was keeping the leukocytes down, but we do not know what. I do not believe the cord was blocked. It is interesting that Dr. Mallory speaks of a similar case.

CASE 15362

A CASE REPRESENTING THE COURSE AND TREATMENT OF CARDIOVASCULAR SYPHILIS WITH ANEURYSM

CARDIAC CLINIC OF THE MEDICAL DEPARTMENT

An American freight conductor of forty-five first entered the hospital March 29, three years before his final admission, complaining of pain in his right shoulder.

The family history is negative except for possible carcinoma of the stomach in the patient's mother.

The marital history reveals the fact that the patient's first wife died at forty-three years of age at a hospital for the insane of "general paralysis of the brain and tuberculosis". There were no children. The patient's second wife had two miscarriages and one living child.

The patient worked at night as a freight conductor until three months before entrance.

The past history included a penile lesion twenty years before, treated by pills, ointment and a liquid medicine continued in some form for three years.

Present illness. The patient was well until one year before entrance, when he began to have pain of sharp character in the right shoulder radiating to the neck, arm and back on the right and occasionally to the left shoulder blade. Six months later he noted marked palpitation on exertion. This grew worse. Three months and a half before entrance he suddenly became "stuffed up and black" and lost consciousness. This lasted about two minutes and was followed by a throbbing headache. He had one other similar attack. These symptoms sent him for medical advice. Before coming to the Massachusetts General Hospital he had received bed care, had been given intravenous antiluetic treatment and had taken digitalis.

Physical examination revealed an obese, slightly cyanotic man, somewhat dyspneic. The heart was enlarged downward and to the left. The rate was 82; the rhythm was regular. A diastolic murmur was heard at the base to the right of the sternum. There was also a widely transmitted systolic murmur at the base. At the apex a loud blowing systolic murmur and a diastolic murmur were heard. There were a few râles at the right base. The liver edge was palpable and tender. A penile scar was seen.

Blood, urine and stool examinations were not remarkable. The blood Wassermann reaction was moderately positive.

The electrocardiogram showed normal rhythm, rate of 90, left axis deviation, slight slurring of the Q R S complexes.

The X-ray report was as follows: "The cardiac shadow is increased in size both to the right and to the left. The left ventricle shows some apparent hypertrophy. The supracardiac shadow is markedly increased in width. There appears to be a well defined mediastinal tumor, the right lateral border of which is rather sharply outlined. Fluoroscopically this appears to be associated with the great vessels shadow and shows rather marked pulsation. Its appearance suggests that it is probably an aneurysm of the ascending aorta; probably some dilatation of the innominate as well. Measurements · right 5.5 cm., left 10.5, total transverse 16, length questionable, base 9.9, great vessels 11.1, chest 27."

The treatment recommended was potassium iodide or mercury or iodobismuthate of quinine and digitalis if necessary for failure.

The patient was discharged to the Out-Patient Department. As antiluetic treatment he was given the following:

Hydrargi biniodi	0.13	grs. ii
Potassii iodidi	20.00	v
Syr. zingiberis	60.00	ii
Aquae ad	120.00	iv

Sig. 1 teaspoonful three or four times a day.

He found some clerical work, and on the

whole was comfortable and continued to be self supporting and not at all an invalid, though his activity was somewhat limited. After four months at this light work he felt so well that he returned to his former work as yard freight conductor. He throve on this for two years and a half except for some dyspnea on exertion, relieved promptly by rest.

His next real symptom was boring pain deep in the left hip and thigh and in the right elbow and lower arm, with coldness, numbness and weakness. There was weakness in the right arm and some diminished sensation. The knee jerks were active and equal. The Romberg was negative. These symptoms brought up the question of bone or nerve involvement.

The spinal fluid Wassermann at this time was negative. Protein, colloidal gold and dynamics of the spinal fluid were negative. There was a slight increase in the number of cells. The blood Wassermann was strongly positive, the Hinton test moderately positive.

The patient was now given a course of twelve injections of iodobismuthate of quinine 0.2 grams intramuscularly into the buttocks. The pain in the extremities apparently was relieved. He had some dyspnea and some vertigo at times. Spinal fluid examination at the end of this series of treatments was quite negative. After five weeks without treatment except for potassium iodide and mercury as prescribed previously he was started on another course of intramuscular treatments. After four injections he complained of swelling around the eyes, nocturia, and frequency during the day. He had some pain in the right shoulder. The urine was negative for albumin. The bismuth was omitted but the potassium iodide and mercury prescription continued in view of a possibly irritating effect on the kidneys by the bismuth. The patient gradually became more easily fatigued, developed a dry, later a typically brassy cough, the neck and arms became more puffy, and pains in the right upper chest became more persistent. He was sent into the wards for paravertebral alcohol injection.

Dr. J. C. White injected the first, second, third and fourth dorsal nerves on the right with 8 cubic centimeters of one per cent novocain. The pain was relieved for about twenty-four hours. At injection of the third dorsal nerve when the preliminary aspiration was done fluid, apparently blood serum, was obtained. The position of the needle was changed prior to injection. A few days later 5 cubic centimeters of 95 per cent alcohol was injected into the first and second dorsal nerves, complete anesthesia being obtained in the back but only partial in front. There was considerable pain anteriorly and some posteriorly for a few days and soreness for some time, but the original pain was much relieved.

The patient then developed otitis media and mastoiditis, relieved by operation. The pulsating tumor 9 centimeters in diameter extending from two centimeters to the left of the suprasternal notch to the right midclavicular region subsided, together with the swelling of the face, in the course of a month. He was practically free from pain.

One month later, however, he again entered the hospital complaining of cough for three weeks and jaundice for eight days. For twenty-four hours he complained of a pulsating, burning pain originating above the right shoulder joint and radiating to the nape of the neck. It grew steadily worse and was severe enough to prevent sleep. With this he was dyspneic, especially on lying down. At one o'clock in the morning of the day after entry he died suddenly.

Discussion

BY ROBERT S. PALMER, M.D.

This case represents very well the course of cardiovascular syphilis with aneurysm. All told the duration was about four years from the first symptom, namely pain in the right shoulder, arm and back. This was not especially related to exertion, though nitroglycerin subsequently afforded definite relief. In luetic aortitis anginal pain due to diminished circulation from involvement of the mouths of the coronary arteries is often encountered. The pain in this instance however may well have been due solely to pressure from the aneurysmal sac. The first symptom of congestive failure came suddenly with a "stuffed up" feeling, cyanosis and syncope. The onset of congestive failure in luetic heart disease is notoriously sudden. Cardiac asthma is relatively common in luetic heart disease and luetic aortitis. Occasionally marked help is obtained from antiluetic therapy. The management of this case was very effective until the six weeks before his sudden death from rupture of the aneurysm into the right pleural cavity. Mild degress of jaundice or subicterus are not uncommon in visceral syphilis. The degree of jaundice which this patient showed together with light colored stools and highly colored urine cannot be accounted for on a purely luetic basis, but is the sort usually resulting from biliary obstruction, of which there was no evidence other than the jaundice in this case. The more plausible explanation is that the jaundice was due to a toxic effect from the bismuth or mercury which had been used. One finds clay colored stools and high colored urine in toxic jaundice. Against this explanation is the fact that the patient had received no bismuth for five months and only moderate doses of mercury. Furthermore, mercurial stomatitis was not present. In cases of toxic poisoning from bismuth or mercury, sodium hyposulphite should be used as follows: one gram daily in-

travenously and one gram two or three times a day by mouth. This drug acts by hastening the excretion of the heavy metals.

In the treatment of luetic heart disease and luetic aortitis three lines of therapy are employed, all illustrated by this case. (1) Congestive failure is treated as in failure accompanying other conditions. (2) For specific antiluetic treatment this patient was given mercury and iodides for two years. At the end of this time his blood Wassermann and Hinton tests were still positive. However, he had returned at first to light work and later to his former manual employment. Apparently for two years the situation was held in check and he was able to work. Pain in the extremities finally led to the use of iodobismuth of quinine with good effect. Seven months after starting this treatment the enlarging aneurysmal tumor again began to give pressure symptoms, pain and obstruction to the venous return from the head. (3) The relief of pain by paravertebral nerve block is now a well recognized procedure. It was used with success in this case. It is symptomatic treatment, and of course has no effect on the progress or outcome of the disease.

A feasible method of treatment in the saccular type of aneurysm is wiring to produce a clot. In the hands of some operators it has been quite successful. It may be that a clot with reduction of the tumor and improvement of the symptoms occurred spontaneously in this case. The type of aneurysm in this patient would have lent itself well to this operation.

CLINICAL DIAGNOSES

Luetic heart disease.
Luetic aortitis.
Aortic regurgitation.
Aneurysm of the ascending aorta.
Congestive failure.
Alcohol infection of right first and second dorsal nerves.

ANATOMIC DIAGNOSES

1. *Primary lesion.*

Syphilitic aortitis with ruptured aneurysm.

2. *Secondary or terminal lesion.*

Hemothorax, right.
Infectious cirrhosis.
Acute hepatitis.

DR. TRACY B. MALLORY: Autopsy showed a large aneurysm of the ascending portion of the aorta which projected into the right pleural cavity, eroded the posterior surface of the manubrium, and extended a short distance up into the neck. In the center of the portion projecting into the pleural cavity was a small irregular rupture and the cavity itself showed nearly 5 liters of fluid and clotted blood. The wall of the aneurysmal sac varied from 3 millimeters to 3 centimeters in thickness. The perforation had occurred at the thinnest spot. In the thicker areas masses of laminated blood clot formed the major portion of the wall. The heart itself was small and its weight was estimated at 250 grams. The valves, the myocardium and the coronary arteries were all negative.

The liver showed in gross a finely nodular surface and a definite increase in consistency. Microscopic examination showed a definite cirrhosis of the so-called biliary, or infectious, type, with a considerable degree of polymorphonuclear infiltration at the periphery of the lobules. This unquestionably accounts for his terminal jaundice. It is not a lesion which could have been produced by arsenicals or other drugs used in the treatment of lues. Cirrhosis of this type is however very rare in the absence of biliary obstruction and no pathologic lesions could be demonstrated in the gall bladder, bile ducts or pancreas.

The remaining organs were essentially negative.

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RIPPLES ON THE SURFACE CURRENTS OF MEDICAL AFFAIRS

IF the genial Autocrat of the Breakfast Table could return and observe the tendencies of the times there might be an addendum to the essay on "Currents and Counter Currents" with a display of wit and satire which would convert ripples into whirlpools.

It seems to be that according to localities and personal reactions the dividing line separating strictly ethical conduct and questionable behavior is irregular and far from standardization even though the American Medical Association has adopted a code of ethics as a guide to its members. One of the oft recurring and disturbing subjects seems to revolve about the question as to what is reputable and proper publicity among doctors and especially that kind of publicity which carries the suggestions of personal advertising.

As an illustration a so-called complexion soap seems to have the endorsement of seventy-two leading dermatologists according to an advertisement. In order to carry weight and make the appeal enticing an eminent dermatologist who is also an ex-president of the American Medical Association supplies a definition of dermatology and an endorsement of the seventy-two other dermatologists over his alleged signature in the following words:

"What is a dermatologist?

The title of dermatologist rightfully belongs only to registered physicians who have been licensed to practice medicine and who have adopted the science of dermatology (the care of the skin) as their special province.

The reputable physician is the *only* reliable authority for scientific advice upon the care and treatment of the skin.

I have personally examined the signed comments from 72 leading dermatologists of America who have approved the formula and cleansing action of —— Soap. I certify not only to the high standing of these physicians, but also to the accuracy with which their approval has been stated in this advertisement."

While this toilet article may be excellent and useful as a soap under ordinary circumstances the question has arisen in the minds of certain unprofessional persons with respect to the wisdom of the very eminent dermatologist in appending his name to an advertisement of this character in a popular weekly publication.

When the question was put to a group of physicians, no approval of the position taken by their confrere was forthcoming.

It may be that occasionally a person desirous of improving one's complexion may have disturbances of nutrition or even the invasion of the skin by micro-organisms which mar the complexion. Such conditions are not appropriate for self-medication but some persons may unwisely resort to the complexion soap approved by seventy-two dermatologists who in turn are endorsed by a leader in the medical profession of national reputation.

The vendor of the soap might not feel sufficient concern about the needs of the victims of a skin disorder to proffer the logical advice to consult a dermatologist and here as in many other cases of self-medication valuable time might be lost in addition to a worthless expenditure.

Many inexperienced young people are ready to take any advice which claims to meet their needs especially when it concerns the appearance of exposed parts of the body.

We believe that the dignity of the profession is not enhanced when doctors lend their names to publicity to further the sale of toilet articles.

The laity will be quite apt to believe that the endorsement of a soap by a doctor involves a quid pro quo. We cannot believe that, in the case referred to, the doctor was in need of revenue from this side venture or that any kind of barter influenced the ex-president of the American Medical Association. But why did he contribute his great influence to advance the fortunes of a soap manufacturer?

We await the echo.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

PAINE, A. K. M.D. Tufts 1902. F.A.C.S. Professor of Obstetrics, Tufts College Medical School; Obstetrician-in-Chief, Booth Hospital; Surgeon-in-Chief, Department of Diseases of Women, Boston Dispensary; Consulting Obstetrician, Beth Israel Hospital. He writes on: "The Ethics of Cesarean Section." Page 445. Address: 80 Bay State Road, Boston, Massachusetts.

KICKHAM, CHARLES J. M.D. Tufts 1908. F.A.C.S. Senior Visiting Obstetrician, St. Elizabeth's Hospital. He writes on: "Treatment of Puerperal Sepsis." Page 451. Address: 524 Commonwealth Avenue, Boston, Massachusetts.

STANDER, H. J. M.S., M.D. Yale 1921. Associate Professor of Obstetrics, Johns Hopkins University and Hospital. He writes on: "An Analysis of 801 Cases of Toxemias of Pregnancy." Page 458. Address: Johns Hopkins Hospital, Baltimore.

SHIPTON, GEORGE M. A.B., M.D. Johns Hopkins 1917. Obstetrician, House of Mercy Hospital, Pittsfield, Massachusetts. He writes on: "Injuries to the Pelvic Floor and Their Treatment." Page 466. Address: 41 Clinton Avenue, Pittsfield, Massachusetts.

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MILLER, ELMER M. M.D. Baltimore Medical College, 1898. Medical Referee for Grafton County; Visiting Surgeon and Trustee of Woodsville Hospital; County Physician. He presents a "Report of a Case of Gunshot Wound of the Abdomen." Page 484. Address: Woodsville, New Hampshire.

THE DOCTOR'S SADDLE BAG

MIDSUMMER MADNESS

WERE I a philosopher—which unhappily I am not—I would look forward from year to year with a mild interest and in a purely non-competitive spirit to the changing vogues in midsummer madness which each vacation season presents. The theme has been touched upon before; the bathing girl stickers and the flagpole sitters have received their recognition, but so fertile is the American brain in the conception of new inanities that the subject again insists on forcing itself upon a faltering pen.

Ladies and gentlemen—to mention them in the Victorian manner—have for lo these many moons painfully tangoed from Taunton, Mass. to Texas. Avid aviators have grown full beards, first black, then touched with silver, while spending an entire summer lost among the clouds of egotistical bumptiousness. The marbles champion of West Lynn has signed his $50,000 movie contract, and many otherwise happy vacationists are considering pushing dilapidated Fords from the mountains to the shore with one hand, while eating ham sandwiches with the other. They are doing it not in a spirit of competition, but a progressive promoter might make much of the idea.

Even in our own temporary retreat among the fastnesses of Nature rumors occasionally intrude of more and youthful flagpole sitters, of endurance swingers, defying the laws of vertigo and setting at naught the function of the semicircular canals; of marathonic charges of the rocking chair brigade. Even here, beneath the whispering pines and among the rocky buttresses of the mountains, on the placid bosom of the lake and on the courts of tennis a hot and passionate contest exists among the younger element concerning the number of packages of chewing gum which can be masticated at one time, and for how long. It is among the positive virtues of our nation, that each must excel at something and we do not always bear in mind the ancient geometric truth that one end of a circle is dangerously near the other.

It would be a gross calumny; a miserable ignoble slander even to hint that if all the empty heads were filled with sawdust our stately forests would vanish as if by magic, for who would

not sit ten days on a flagpole if rewarded by a daily exhortation from the mayor of his home town, spurring him on to continued emulation of his hardy, if rude forefathers, who had carved cities from the wilderness, wrested the fertile prairies from the bison, and converted a continent into a citadel of commerce?

We should not be harsh; the nitwits of the nation must enjoy their fatuousness, since they can appreciate nothing else, and partial, or approximate reason will return. Were I a philosopher—and unfortunately that child of reason cannot be left upon my doorstep—I might view with alarm, or at least a vague disquiet, the foibles of my fellows, but I know that Labor Day has passed and with its going the cloud of midsummer madness has been lifted from the minds of our suffering citizens and they have returned to forms of occupation which are at least partially productive.

The idea of Labor Day was a happy thought when it occurred to some wise forefather, probably not while sitting on a flagpole, for as yet no evidence has been advanced indicating that these hardy citizens are ever afflicted with ideas. Opportunities for meditation may hammer on their doors, but as yet their intellectual output has been negligible. Labor Day, as an institution, deserves to rank with the Declaration of Independence, the Constitution and the Power of the Press. It is like the ringing of the school bell at the close of recess. The flagpole sitters slide down their poles, the endurance swingers reel from their swings, the rocking chairs are stilled, the chewing gum is parked where most convenient for the chewer, the bunion derbyists dash for the hot mustard bath and the upper level vacationists glide from the blue, are photographed with wife on knee and seek the services of a barber.

Labor Day is aptly termed. Originally invented, designed or set apart as an opportunity to pay respect to the dignity of labor, it has come to mark the time when a time-marking nation goes back to work. I do not mean to infer that, as a nation, we have done no work during the preceding two months, but our minds have not been on it; we have not taken it seriously. It is the season of relaxed effort to which we have looked forward for ten months, and Labor Day sounds its knell. To tell the truth, we have been getting a little tired of it and are ready to start another ten months of forward looking.

MISCELLANY

TUBERCULOSIS ABSTRACTS

One of the oldest "laboratory" tests, known even to the ancients, consisted of noting whether a patient's sputum floated or sank in a pail of water. Medieval physicians struggled heroically to interpret the meaning of physical and chemical changes of bodily secretions. Laboratory tests are today more trustworthy and precise, yet we are frequently warned not to rely too complacently on the laboratory findings for a diagnosis. At the other extreme is the tendency to neglect laboratory tests

Mal d'Amour, by Gerard Dou

altogether. The presence of tubercle bacilli in the sputum clinches the diagnosis; yet, all too often, this simple procedure is neglected or not repeated often enough. Dr. Henry Stuart Willis, of Johns Hopkins Hospital, who contributes this number, describes the characteristics of the secretions of the tuberculous body and the tests which are applicable to them.

SPUTUM, PLEURAL EFFUSION AND SPECIAL FLUIDS

The secretions of the tuberculous body vary according to the site of the disease and its degree of development. Sputum, for instance, may be very scanty in amount and mucoid in character in one stage of the disease, and very abundant, purulent, bloody or foul at other stages. Pleural effusion fluids may be serous or bloody; they may contain but few cells or may be frankly and grossly empyematous. Urine may contain pus or blood or both. Cerebrospinal fluid may be clear and limpid or turbid. None of the secretions has properties that are specific for tuberculosis but most of them do possess characteristics which strongly suggest tuberculosis.

SPUTUM

Sputum may differ in quantity and quality in different stages of pulmonary tuberculosis. A small, nonulcerative lesion that is moderately well invested with fibrous tissue will produce but little mucus, fibrin, debris, or pus cells, as compared with the ulcerative or cavitative lesion. Yet, it does have certain general features of importance. It is often thick, tenacious, yellow, or grayish-yellow, mucopurulent or purulent. The specimen frequently consists of a thin, salivary liquid in which the mucopurulent "gobs" are suspended: these sink to the bottom as rounded, "nummular" bodies. Interspersed throughout the more homogeneous, thick matrix of these bodies may frequently be found numerous minute, whitish, opaque par-

ticles, and these are much more likely to contain tubercle bacilli than other portions of the specimen. They are more readily detectable when the specimen is placed in a petri dish or on a glass plate and examined over a black background. They may be brought to view by squeezing the specimen between glass plates.

The sputum may be bloody. Blood may be present in large quantity or it may be represented merely as an occasional "streak." Blood in the sputum, regardless of the amount, is a leading indication of tuberculosis and justifies a presumption that tuberculosis is the cause, until a definite cause is demonstrated. The physician in charge of the hemoptoic patient, must, therefore, determine the source of the blood if this be possible. Bloody sputum should always be carefully examined for tubercle bacilli, although when the amount of blood is large, the number of bacilli is usually proportionately small.

Tubercle bacilli are nearly always, sooner or later, demonstrable in pus which comes from the tuberculous lung. The continued presence of such sputum, in which repeated examinations fail to reveal these bacteria, is presumptive evidence against tuberculosis and points rather to some other pulmonary disease (abscess, bronchiectasis, mycotic infection, etc.).

The sputum raised soon after the patient gets up in the morning usually contains more bacilli than specimens obtained at other times. It may become necessary for the doctor to supervise the collection, especially in people with only a slight cough and but little sputum.

The most significant constituents of the sputum in tuberculosis are tubercle bacilli. In the late stages, these are exceedingly numerous and easy to find, but in early stages when the diagnosis is uncertain, very few tubercle bacilli may be present and only intermittently so. Therefore, frequent, careful examinations, repeated daily for some time, should be made. The old Ziehl-Neelsen staining technique is simple, relatively quickly carried out, and thoroughly dependable.

PLEURAL EFFUSION

Pleurisy with effusion is regarded as being tuberculous until some other etiological factor can be definitely demonstrated. The fluid is viscid and usually of a straw or amber color but may be sanguineous or empyematous. It is an exudate fairly rich in lymphocytes and of rather high specific gravity. It is obtained by ordinary thoracentesis. It must be differentiated particularly from the fluid which occurs in the chest in cardiac disease and from that in pulmonary neoplasm. The fluid in cardiac disease is nearly always thinner, of lower specific gravity and cellular content than that in tuberculosis. It is associated with cardiac disease, is often bilateral, and tends to recur. The fluid in association with tumor tends to be sanguineous; if not bloody at the first aspiration, it is very likely to become so on repeated tappings. It tends to recur. The clinical history and examination, together with the continued absence of tubercle bacilli in the fluid, point away from the diagnosis of tuberculosis.

The fluid in pleurisy with effusion must either be examined promptly upon withdrawal or an anticoagulant must be added. Painstaking microscopic examination of the sediment of fairly large amounts of the fluid in pleurisy will yield tubercle bacilli in more than one-half of the cases. The incidence is much higher when the fluid is empyematous, Indeed, the fluid in tuberculous empyema sometimes contains myriads of tubercle bacilli, especially if rupture of a cavity wall has taken place. It is well to centrifugalize several hundred cubic centimeters of the fluid, remove the sediment, and recentrifugalize it for microscopic examination, animal inoculation or planting on culture.

CEREBROSPINAL FLUID

In tuberculous meningitis, the fluid is generally limpid, clear, and under slightly increased pressure, although in fulminant cases it may be turbid. The cell count is generally above 100 cells per cubic mm. and may reach several hundred without the appearance of a grossly detectable opalescence. A few hours after withdrawal, there nearly always develops within the fluid a characteristic (but not pathognomonic) grayish-white, thin, filmy veil which is composed of strands of fibrin that form a delicate network. In the meshes of this structure is gathered most of the particulate matter of the specimen—cells, tubercle bacilli, etc. This pellicle is, therefore, of importance in the search for tubercle bacilli. It may be prepared for stain very easily, as follows: A clean coverslip containing a thin film of fixative is placed in the bottom of a clean medicine glass. The fluid is then collected directly into this container, which is placed in the ice box for a few hours or over night. The pellicle is deposited on the coverslip, which is recovered after a very careful removal of the fluid with a pipette. The coverslip is then allowed to dry, is fixed by passage through a low flame, stained and examined. Cerebrospinal fluid may be centrifugalized and the sediment inoculated on media or into animals.

URINE

Tuberculosis of the genito-urinary system is uncommon without evidence of the disease in some other part of the body. Frequency of urination, intermittent hematuria or pyuria or unexplained polyuria (especially in renal tuberculosis) suggest a careful search of the urine for tubercle bacilli. Urine containing pus in which micro-organisms of disease are absent is a leading sign of renal tuberculosis because in nearly every other disease which causes pyuria the causative bacteria are easily detected. However, the detection of other bacteria in such urine does not eliminate tuberculosis, for secondary invaders are not uncommon. Sterile pyuria may occur in posterior urethritis.

Tubercle bacilli may be present in the urine in enormous numbers although sometimes very few are detectable. They may be conveyed by the hands to the urine from the patient's sputum and thus lead to a false diagnosis. Bacilluria is frequently intermittent. For microscopic study, either a specimen obtained after scrupulous cleansing of the external meatus and irrigation of the external urethra with sterile water or the sediment of a 24-hour specimen should be used. Smegma bacilli

inhabit the external genitalia and may lead to an erroneous diagnosis unless this be guarded against.

THE THIRTEENTH INTERNATIONAL PHYSIOLOGICAL CONGRESS

(Continued from page 441, issue of August 29)

Many practical points of interest were obtained from personal interviews with some of the members of the Congress.

Investigations in the physiology and activity of the brain leading to as complete understanding of its nature and workings as those of other organs of the body, give promise of benefiting mankind more than any other study now being pursued by scientists, according to Juan Petrovich Pavlov of Leningrad who in answer to the question "What line of scientific investigation do you think will prove most fruitful to mankind", replied, "That is hard to say, but after devoting half of my life to a study of the highest organ in man and animals (the brain) I naturally believe that to pursue this study would lead to a greater advance in human knowledge than any other. I admit that to make this statement is a sign of weakness in me, which I can excuse only by the fact of my intense interest in this subject." Dr. Pavlov answering another question said, "The study of the brain such as is now being pursued most certainly has 'practical value'." "If we can hope to understand and control human behavior we have to know the elementary units on which it is based; starting our work with the less complex behavior of animals," he said. "In this work we are handicapped considerably by reason of the fact that the workings of the brain are being probed and analyzed by the brain itself." He hoped that the work he and his associates are doing will be of direct benefit to mankind.

The chief danger to the progress of pure science results from the practice of some of the large commercial organizations and institutes, of attracting the best brains of the profession to their laboratories, according to Dr. Henry Hallett Dale, Director of the National Institute for Medical Research, London, who said that if industrial organizations continue to take the best men out of colleges and universities for their uses, they will kill the goose that lays the golden egg. Dr. Dale said that there was a danger of too much organization in research work and it should not be forgotten that brains count more than money in science. Many times money is given to put up buildings to carry on the name of the donor, with little attention paid to what work will be accomplished with the new facilities. Concerning the development of physiological research, Dr. Dale said that the thing to do is to provide encouragement for the best brains, wherever found, in big or little institutions. Any science which becomes commercially profitable is in danger of entering the class of the goose and the golden egg. In physiology that condition has not yet arrived. Dr. Dale joined Dr. Archibald V. Hill of the University of London in praising the great advances being made in physiology in this country.

Dr. Hill, in replying to a query, said that professors are paid relatively less in this country than in England, considering the difference in the cost of living. "Seventy-five hundred dollars in London is worth at least $10,000 in America." "English Universities," he added, "are all given some government support, although privately controlled. The salaries of men engaged in research depends often on the number of papers he has published and the publicity he receives."

Courtney Crocker, President of the Japan Society, and Mrs. Crocker accompanied the Japanese delegates on a trip to Cohasset in the yacht of Mr. Hugh Bancroft. On landing, the party was taken by automobiles and entertained by Mr. Bancroft, Mr. Lyneham Crocker and Mr. Delano Wight.

Although there were four official languages for the Congress, French, German, Italian and English, some difficulties arose because delegates could not always understand the speakers on certain subjects, since the use of more than 32 languages by the different delegates presented obstacles. It was expected that four languages would be sufficient since it was expected that each delegate would be familiar with one language besides his own, and that one would probably be one of the four selected.

But not all of the visiting members had command of any language besides their own. Some of them, however, can read one other language but have difficulty in following some of the speakers. To help them, there were on hand six official interpreters while delegates speaking other than their own tongue were pressed into service.

One member stated that some of these scientists were as badly off as blind people for they were unable to find their way about the city. Buses were provided to take them to and from their dormitories.

Dr. Morio García Banio of Cleveland, Ohio, a professor at the Western Reserve University, was especially useful because of a knowledge of French, Italian, German, Spanish, Russian and English. Another delegate was official interpreter in the Scandinavian languages and was helpful to visitors from Norway, Denmark and Sweden.

On the evening of August 22, the members of the Congress were guests at a banquet in Memorial Hall, Cambridge, tendered by the Federation of American Societies for Experimental Biology. Dr. Edward B. Krumbhaar, Professor of Pathology at the Graduate School of Medicine, of the University of Pennsylvania, made the opening speech of the evening as the retiring President of the Federation. He introduced Professor Walter B. Cannon, Professor of Physiology at the Harvard Medical School as toastmaster.

Professor Cannon paid tribute to the patriarchs of the Congress, Professors Pavlov and Leon Fredericq, who will celebrate their birthdays within the month. Professor Fredericq's age is within two years of that of Dr. Pavlov. Dr. Cannon then traced the development of physiology as one nation after another made significant contributions to this science. He began with Italy where Physiology flourished during the Renaissance, and he called upon Professor Filippo Botazzi for a few words.

After Professor Botazzi's toast Dr. Cannon described the rise of physiology in England, Germany, and France calling upon Professors Archibald Vivian Hill of England, Otto Frank of Germany and Eugene Gley of France to respond for their countrymen. All of these men are members of the International Committee of the Congress.

The Congress adjourned on Friday, August 23. The consensus of opinion was that the Congress tran-

scended all past meetings, both in the larger attendance and the extent of the scientific discussion.

The total membership is 1654. Regrets filed, 48. Enrollment, 1606.

The total number of nations represented was 41. The countries represented with number of delegates were: Germany, 99; Great Britain, 95; France, 62; Italy, 41; Spain, 28; Austria, 26; Hungary, 22; Belgium, 20; Holland, 16; Japan, 16; Czechoslovakia, 15; Switzerland, 13; China, 13; Sweden, 11; Russia, 10; Poland, 6; Romania, 6; Ireland, 4; Denmark, 4; Greece, 3; India, 3; Philippines 3; Brazil, 2; Cuba, 2; Estonia, 2; Finland, 2; Latvia, 2; New Zealand, 2; Bulgaria, 1; Chile, 1; Colombia, 1; Ecuador, 1; Egypt, 1; Mexico, 1; Norway, 1; Portugal, 1; Syria, 1; Uruguay, 1; Dominican Rep., 1; Costa Rica, 1.

The outstanding address at the adjournment of the Congress was given by Leon Fredericq, Professor Emeritus at the University of Liege, Belgium, and President of the Second International Physiological Congress, held at Liege in 1892. Professor Fredericq reviewed the events leading to the formation of the Congress and recalled some of the important events of this and the eight succeeding congresses, covering a period of more than a quarter of a century in his talk on "Reminiscences of the Early Days of the Physiological Congress." Dr. Fredericq presented a detailed history of important features of events connected with the inauguration of the first congress and reported interesting matters pertaining to the character of the work and behavior of the participants in the discussion, mentioning by name those who have contributed to the advances in knowledge pertaining to physiology.

He explained the changes which have characterized the earlier meetings as contrasted with those of later date; in that in the former there were fewer papers read than is the custom now, but many demonstrations of experiments and apparatus, which are recorded and embodied in teaching exercises in medical schools and referred to the important subjects discussed in the different congresses.

Dr. Fredericq closed his brilliant address in these words, "If we look backward to consider the results achieved by these nine Physiological Congresses, spreading over a period of 25 years, we may say that they give a faithful picture of the development and progress of physiology during that quarter of a century. These meetings witnessed the first fruit of nearly all the great forward steps made in our science."

"Thus they formed a precious means of mutual instruction for physiologists: with a minimum of time and effort they were initiated into all the new problems of the science of life, and became familiar with the most varied techniques."

"They offered also an opportunity to know one another better, and to make friends with learned men of foreign lands."

"Alas! The war interrupted this fine tradition; fortunately we have resumed it and it is now continued in Boston, after Paris, Edinburgh and Stockholm."

"Let us wish good luck to this work of progress and peace. It is in excellent hands, as the great success of the present meeting proves."

Following the address of Professor Fredericq, a facsimile copy of the original minute book of the Physiological Society of London was presented to Professor William H. Howell, President of the Congress. In this book the record of the original call issued for the first International Congress held in Basle is reproduced.

Professor Henry Hallett Dale, acting in behalf of the British Delegation, made the presentation speech, in which he extolled the spirit of fellowship and international good will which has characterized the various congresses and especially referred to the evidence of cordiality existing between scientists of other countries and those of the United States. He felt that this Congress will stand as a record of scientific achievement and America's unrivalled hospitality.

Professor Howell, in accepting the volume, said the token to him as acting head of the Congress will of necessity arouse the liveliest expressions of gratitude among American physiologists. The volume will be entrusted to the keeping of the American Physiological Society.

A short address was delivered by Professor Johan H. Johansson of Stockholm, president of the Twelfth International Physiological Congress in 1926. He said in substance: Physiologists from all parts of the world have again gathered for joint discussions. . . . The time, the place of meeting lies outside of the region from 45° to 60° North and from 0° to 16° East, in which our past Congresses have been held.

He gave an interesting exposition of science and human culture in its different forms and expressed the hope that the adjustment of human minds will prevent senseless enterprises and he felt that these congresses will tend to develop bonds of common interest which will promote peace on earth.

The Congress accepted a recommendation that the present international committee of the body be continued in office with the addition of Professor Howell, making a total of seven members.

Professor Rudolph Hober, of Kiel, Germany, in a brief speech, moved a vote of cordial appreciation for the work of the American officials who carried out the arrangements for the Congress. He paid warm tribute particularly to the work of Dr. Walter B. Cannon, of Harvard Medical School, Chairman of the Congress Bureau, and Drs. Edwin J. Cohn and Alfred C. Redfield, Secretaries of the Congress. Professor J. Barcroft, of Oxford, England, seconded the motion, lauding the committees of the American Physiological Society and the Federation of American Societies for Experimental Biology, joint hosts to the Congress, for their share in the work of organizing the sessions.

Before adjournment, the Congress voted to hold the next meeting, that of 1932, in Italy. The city in which the sessions will be held as well as the exact time to set apart for them, will be determined later by the government authorities, in co-öperation with the International Committee of the Congress. The next meeting will be the second time that the Congress will meet in Italy, for the Fifth International Physiological Congress was held at Turin, Italy, in 1901.

(*To be continued next week*)

INTERNATIONAL CONGRESS ON MENTAL HYGIENE

President Hoover has accepted the honorary presidency of the First International Congress on Mental Hygiene, which will open in Washington, D. C.,

May 5, 1930. Among the questions to be discussed will be the specific application of mental hygiene to the maladjustment problems of individuals. Special attention will be given to problems of early childhood and adolescence.

COMPARISON OF THE DEATH RATES OF URBAN AND SUBURBAN COMMUNITIES

It has been found that deaths in cities exceed those in rural communities in number and rate per thousand of the population. But this fact does not hold true throughout the year for during summer months the rural communities have a higher mortality rate than cities as a rule.

Enteric complaints, apoplexy and pulmonary diseases keep the suburban mortality rate higher than that recorded in cities during warm months. Massachusetts, New Jersey and Ohio have a slightly higher rate among the cities than in rural areas.

The most important factor in lowering mortality rates may be ascribed to a water supply that has been filtered, softened and chlorinated.

It is being more generally recognized that health is purchasable to a large degree and one of the most essential investments is a water supply which is above reproach.

If small towns could have as good water supplies as cities there would be a larger credit to suburban areas.

WEEKLY HEALTH INDEX

Telegraphic returns from 62 cities with a total population of twenty-nine million for the week ending Aug. 24 indicate a mortality rate of 10.5 as against a rate of 10.5 for the corresponding week of last year. The highest rate (20.6) appears for Nashville, Tenn., and the lowest (5.0) for Schenectady, N. Y. The highest infant mortality rate (194) appears for Nashville, Tenn., and the lowest for Oklahoma City, Okla., Schenectady, N. Y., Somerville, Mass., Tacoma, Wash., and Utica, N. Y., which reported no infant mortality.

The annual rate for 62 cities is 13.5 for the thirty-four weeks of 1929, as against a rate of 13.2 for the corresponding weeks of 1928.—*U. S. Dept. of Commerce, Bureau of the Census.*

STUDIES OF THE ETIOLOGY OF PYORRHEA

Dr. C. A. Kofoid of the department of zoölogy of the University of California has made a study of pyorrhea and concludes that although the Endamoeba gingivalis and the Trichomonas buccalis are usually found in cases of pyorrhea it is probable that other organisms and conditions of the mouth may play a prominent part in causing this disease. It has been determined apparently that pyorrhea will not develop in a normal mouth.

BETTER MIDDLESEX MILK

Dr. A. W. Gilbert, State Commissioner of Agriculture, recently conducted a meeting for conference with dealers and inspectors of Middlesex County for the purpose of raising the quality of milk sent into Boston.

This is the first of a series of meetings which will deal with the problem of securing better milk throughout the State. In order to bring this about a campaign of education will be carried on among the farmers and dealers.

Dr. C. L. Scamman of the State Department of Public Health, Melvin F. Master, Milk inspector representing Lowell, and H. A. Brown, representing the Middlesex County Extension Service were among those present.

FURTHER RECOGNITION OF DR. WILLIAM BEAUMONT

A group of scientists in attendance on a course in cardionephritis at the Physicians Hospital, Plattsburg, New York, assisted at the dedication of a bronze tablet in honor of Dr. William Beaumont.

The tablet is the gift of the New York Department of Education. The memorial marks the site where Dr. Beaumont began medical practice in 1815.

Dr. Harold Rypins made the presentation speech and Dr. Walter R. Steiner, Chief of Staff of the Hartford, Conn. General Hospital delivered an address.

Among the scientists present were:

Professor Jane Sands Robb, professor of physiology, Woman's Medical College, Philadelphia.

Dr. Homer H. Oaksford, cardiologist, Nathan Littauer Hospital, Gloversville.

Dr. Mary Easby, cardiologist, Woman's Hospital of Philadelphia.

Dr. D. Grant Campbell, lecturer in therapeutics, McGill University Medical College, Montreal.

Dr. Frederick P. Howard, professor of physiology, College of Physicians and Surgeons, Columbia University.

Dr. Daniel M. Brumfield, bacteriologist, Saranac Lake.

Dr. Robert Cummings Robb, national research fellow, College of Physicians and Surgeons, Columbia University.

Dr. Joseph Wolffe, cardiologist, Temple University Medical College, Philadelphia.

Dr. George F. Dock, electro-cardiologist, Watertown, N. Y.

Dr. Harris A. Houghton, New York City.

Dr. Elmer H. Heath, Roosevelt Hospital, New York.

Dr. Arthur Knudson, Albany Medical College.

Dr. W. D. Stroud, cardiologist, Pennsylvania Hospital, Philadelphia.

Dr. Alfred Webb, cardiologist, Clifton Springs, N. Y.

Dr. Melvil Dresbach, physiologist, Albany Medical College.

Dr. Cassius D. Silver, chief of staff, Physicians Hospital, Plattsburg.

Dr. Frank M. Falconer, Roosevelt Hospital, New York.

THE WORK OF THE CHILDREN'S ISLAND SANITARIUM

The 93 little children ranging in age from 2 to 12 at the Children's Island Sanitarium are responding to this summer's sun treatment given them at the Sanitarium on Lowell Island, Marblehead Harbor, with almost miraculous results. The recently constructed swimming pool with its fresh sea water pumped into it every day warmed considerably above

the temperature of the sea is proving of inestimable value to the nurses and doctors in their work. The little bodies where surgery and disease have lowered the resistance respond to the soothing effects of the salt water with surprising rapidity.

The children are afflicted with various ailments, suffering from tubercular joints, from the after effects of infantile paralysis, from various manifestations of malnutrition, and other defects. The outdoor life on Lowell Island, however, is an example to the medical observer of how nature can be induced to perform a rebuilding task in the shortest space of time —for invalided youngsters there suddenly become whooping small boys and limping little girls become active with pains and aches forgotten.

The schedule in the Island consists of everyone up at 7:00 A. M. and ready for breakfast which includes steaming cereal cooked in milk, whole wheat bread and fruit; light lunch is served at 10.30; dinner is called at 12:45; and supper comes before 5:30 with "taps" at 6:15. Besides the periods of rest and play, there are periods of physiotherapy, during which the muscles are put through a series of scientific paces for better development of parts of the body specially needing such exercise. Occupational therapy, whereby boys and girls learn to weave handsome baskets out of white rattan and to make belts and woolen dolls and to do other equally fascinating things with their fingers and hands, is a part of the routine.

This year the Superintendent on the Island is Miss Elsie Wulkop, who is head of the House Social Service at the Massachusetts General Hospital. She is a woman of large experience in work of this kind. There is a staff of three day nurses and one night nurse, who are assisted by eighteen volunteer workers, recruited by the Junior League from among the season's debutantes and sub-debs.

The present medical staff of the Institution consists of Dr. Lloyd T. Brown, Chairman of the Committee on Admissions, and Dr. Loring T. Swaim, both orthopedic specialists. Dr. Harry Lowd of Swampscott serves as examining physician.

The Children's Island Sanitarium was founded by a group of generous Bostonians. It is a private charitable agency, and for the past 44 years public-spirited citizens have given generously to restore as far as possible health to childhood. George S. West of Chestnut Hill is the President; Samuel Vaughan, Vice-president; Augustus Hemenway, Jr., Treasurer; Roger Amory, Secretary.

Mrs. Robert M. Tappan is Chairman of the Ladies' Committee and is assisted by Mrs. William T. Aldrich; Mrs. Lloyd T. Brown; Mrs. Francis Crowninshield; Mrs. Richard Curtis; Mrs. Leslie B. Cutler; Mrs. Carl Dreyfus; Miss Edith Fabens; Mrs. George P. Gardner, Jr., Mrs. Charles A. Rheault; Mrs. William D. Sohier, Jr.; Mrs. Loring T. Swaim; Mrs. Bayard Warren; and Mrs. George S. West.

CORRESPONDENCE

THE AFTERMATH OF THE CLEVELAND CLINIC DISASTER*

Editor, NEW ENGLAND JOURNAL OF MEDICINE:

Despite the enormous setback experienced by the Cleveland Clinic, patients are still being cared for under the leadership of Dr. Crile and his associates. Immediately after the disaster the Clinic was moved across the street to an old dormitory of the Laurel School, which is now situated in the Cleveland Heights. In this dormitory amid many handicaps the work was carried on. Meanwhile, the new wing of the Clinic Hospital, under construction at the time of the tragedy, was rushed to completion. On the sixteenth of August the Clinic was moved into this new wing.

This part of the hospital has eight floors. Bed patients are cared for on the third, fourth, and fifth floors. The rest of the building is taken up with the out-patient department, research laboratories, and the library.

The fate of the building which was the scene of the disaster still hangs in the balance. The first decision was to raze it to the ground, but now the possibility of using it for a storehouse or warehouse holds back the hand of destruction. Upon entering the building one is greeted with a strange odor reminiscent of the chemical laboratory. The walls, wainscoting, bricks,—everything, are covered with a thin film of black tarry material; a grim reminder of the fatal catastrophe.

Experiments are now going on to determine the possibility of salvage. Dr. Graham, formerly Assistant Professor of Surgery at Western Reserve University and now chief pathologist for the Cleveland Clinic, gave a very interesting interview on this subject, upon which he is conducting researches. If a brick from the fated building is examined, all of the exposed sides and edges are found to be covered with a black film. This film when scraped off weighs about fifty-seven grams. Now, if this material is heated in a retort, the resulting gas filtered through water, and then passed into a chamber containing a rat, despite sufficient oxygen being present to prevent asphyxiation, the rat dies in about twenty-five minutes, with all the symptoms and signs of carbon monoxide poisoning. If four times the amount previously taken, but this time of the unblackened brick, is heated in the same way, the resulting gas has no effect on the rat. If, however, the brick is soaked in water first, any part of the brick heated in the way described will kill a rat, showing the solubility of the material in water. If X-ray films are heated in a similar manner, a colorless lethal gas insoluble in water is obtained. Combined with oxygen this gas forms the brown fumes of nitrogen dioxide, which being soluble in the water, forms nitrous acid. This is what happened in the fire when the colorless nitrous oxide combined with the oxygen of the air to form a thin film of oxidized material all over the building. The new as well as the old X-ray films give this same reaction, but they differ in intensity. The conclusions drawn from these experiments must certainly be that the old Clinic building is unfit for patients and that the one safe way of salvage is to scrap all the blackened material away.

What the future will bring cannot now be foretold. Certainly it seems unwise from a standpoint of business economics to employ for a warehouse so costly a site fronting on Cleveland's main thoroughfare. The Clinic is to be congratulated, however, in carrying on its work in the face of these difficulties.

NORMAN W. THIESSEN.

*A report of a visit to the Cleveland Clinic.

RECENT DEATHS

CUSHMAN—Dr. Ella Rosalind Wylie Cushman, wife of William F. Cushman, died at her home in Boston, Aug. 24, 1929 at the age of 75.

She was a graduate of Tufts College Medical School in the class of 1894 and had practised medicine in Boston up to recent years. Besides holding fellowship in the Massachusetts Medical Society she was also a Fellow of the American Medical Association.

PRINCE—Dr. Morton Prince, eminent Boston psychoneurologist, author and publicist, died at the Peter Bent Brigham Hospital, Roxbury, August 31, 1929, at the age of seventy-four, after a short illness.

NOTICES

REMOVAL

Dr. Seth M. Fitchet has removed his office from 270 Commonwealth Avenue to the Longwood Medical Building, 319 Longwood Avenue, Boston.

Dr. Ben H. Metcalf has moved from Phoenix, Arizona, to Ruskin, Florida.

Dr. Howard A. Lampher has moved from Hartford, Connecticut, to 4416 Kingman Blvd., Des Moines, Iowa, where he holds the position of Director, Division of Preventable Diseases for the Iowa State Department of Health.

Dr. George B. Rice has moved his office from 270 Commonwealth Avenue to 99 Bay State Road, Boston.

Dr. D. M. Butler has moved his office from 377 Huntington Avenue, Boston, to 371 Commonwealth Avenue, Boston.

Dr. William R. Redden has removed from Boston to 45 East 17th Street, New York City. He is the Associate Director, Department of Health Service.

A LECTURE BY PROFESSOR MEYER

Professor A. W. Meyer of Berlin will lecture on "The Surgical Treatment of Pulmonary Embolism" on Tuesday, September 10, at 12 noon, in Amphitheatre "A" at the N. Y. Post-Graduate Medical School and Hospital, 303 East 20th Street.

All physicians are cordially invited to attend the lecture.

NOTICES OF MEETINGS

ANNOUNCEMENT OF THE CLINICAL CONGRESS OF THE AMERICAN COLLEGE OF SURGEONS

Elaborate plans for the entertainment of Fellows of the College and their guests at the nineteenth annual Clinical Congress of the American College of Surgeons in Chicago, October 14-18, are being made by the surgeons of this city. Beginning at 2 o'clock Monday afternoon they will present a varied program of clinics in all branches of surgery. Clinics will be given in all the leading hospitals both morning and afternoon of each of the following four days to Friday inclusive.

The Executive Committee has arranged a highly attractive program for a series of evening meetings beginning with the Presidential Meeting on Monday evening when the president-elect, Major-General Merritte W. Ireland, surgeon general of the United States Army, will deliver the inaugural address. The Murphy Oration in Surgery will be given on the same evening by Professor D. P. D. Wilkie of Edinburgh, Scotland. At the Convocation on Friday evening the Fellowship Address will be delivered by Dr. Glenn Frank, President of the University of Wisconsin. At the scientific meetings on Tuesday, Wednesday and Thursday evenings eminent surgeons of the United States and Canada will present papers dealing with surgical subjects of present-day importance.

A special meeting has been arranged for Wednesday evening with a program of interest to the ophthalmologists and oto-laryngologists, with Mr. Herbert Tilley, of London, England, as one of the speakers.

Other features of interest include a series of clinical demonstrations on Tuesday and Wednesday afternoons by outstanding American surgeons, a symposium on cancer on Thursday afternoon, and an all-day conference on traumatic surgery on Friday. The complete program will be found in the September issue of *Surgery, Gynecology and Obstetrics*, and in the September Bulletin of the College.

Reduced railway fares on the certificate plan have been granted, making the round trip rate one and one-half the regular one-way fare from all parts of the United States and Canada.

WORCESTER DISTRICT MEDICAL SOCIETY

The first meeting of the Worcester District Medical Society for the season 1929-1930 is scheduled for September 11 at 7.30 o'clock and will be held in the Chamber of Commerce Building, Worcester. Dr. Elliott P. Joslin will talk on Diabetes, giving a review of his cases with a résumé of treatment. He will also discuss Progress in Diabetes during the year 1928. Dr. Leland McKittrick will talk on Surgery in Diabetes.

Erwin C. Miller, M.D., *Secretary*.

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

September 27-28—New England Surgical Society. Detailed notice appears on page 1227, issue of June 6.

October 7-19—New York Academy of Medicine. Detailed notice appears on page 468, issue of February 28.

October 13-18—General meeting of the International Society of Medical Hydrology and International League for Combating Rheumatism. Detailed notice appears on page 288, issue of August 8.

October 21, 22, 23, 24, 25—International Assembly of the Inter-State Post-Graduate Medical Association of North America. For detailed notice see page 341, issue of August 15.

November 4, 5, 6 and 7, 1929—Clinical Congress and Eighth Annual Meeting of the American College of Physical Therapy. See page 149, issue of July 18, for details.

December 2-6—The Radiological Society of North America. Complete notice appears on page 149, issue of July 18.

May 5-10, 1930—First International Congress on Mental Hygiene. See page 191, issue of July 25, for details.

DISTRICT MEDICAL SOCIETIES

Middlesex East District Medical Society

September 11—At Bear Hill Country Club, Wakefield.

October—Joint meeting with Middlesex North and Essex North and South.

November 13—At Reading.

January 15—At Boston, Harvard Club.

March 12—At Melrose.

May 13—At Unicorn Country Club.

ALLAN R. CUNNINGHAM, Secretary.

Norfolk District Medical Society

Schedule of meetings for the year 1929-1930. Invitations have been sent to the speakers and the list is true only on condition of their acceptance.

October 29—Medfield State Hospital, Harding, Massachusetts. Papers by the Staff.

November 25—Roxbury Masonic Temple. Dr. Roger Graves, "Urology from the Standpoint of the General Practitioner." Surgical discussion. Medical discussion.

January 27, 1930—Roxbury Masonic Temple. "Recent Advances in Diagnosis and Treatment of Syphilis." Speaker to be announced.

February 24, 1930—Roxbury Masonic Temple, 8:00. Dr. Edwin H. Place has been invited to read a paper and has been given carte blanche in the selection of his subject.

March 24, 1930—Roxbury Masonic Temple. Dr. Burton E. Hamilton. Subject to be announced.

May 6, 1930—Annual Meeting. Program to be announced.

The Censors meet for the examination of candidates, November 7, 1929, and May 1, 1930, in the Roxbury Masonic Temple, 171 Warren Street, Roxbury, at 4:00 P. M.

Applications must be in the hands of the Secretary at least one week previous to date of examination.

Owing to inability to engage the Roxbury Masonic Apartments on the last Tuesday of the month, such meetings as will be held in the Roxbury Temple will be held Monday evenings as per the dates above.

FRANK S. CRUICKSHANK,
Secretary, Norfolk District Medical Society.

Worcester District Medical Society

September 11—For detailed notice see page 501.

BOOK REVIEWS

The Treatment of Fractures and Dislocations in General Practice. By C. MAX PAGE and W. ROWLEY BRISTOW. Oxford University Press. 1929. 280 Pages. Third Edition. Price $4.25.

The principles underlying the treatment of fractures are mechanical. Therefore, methods of reduction which are undertaken with due regard to the anatomy are essentially the same. The means of maintaining reduction vary in different clinics throughout the world. If the methods of maintaining reduction are employed with due regard to the restoration of function, differences in the type of apparatus are of little moment. But any method of reduction which is not based on anatomic principles and any means of maintaining reduction which is not based upon the restoration of function is unsound. He, who has attained perfect anatomical reposition with atrophied muscles and stiffened joints, has failed. He, who has sacrificed anatomical perfection in order to secure a limb with useful joints and musculature, has succeeded. The novice will naturally strive for anatomical perfection. Sagacity in the treatment of fractures is developed only after experience. It is probably impossible to set forth the treatment of all types of fractures even in a lengthy treatise.

Page and Bristow in the foreword of this (the third) edition of their compendium state that they "have not aimed at producing a complete treatise on fractures but rather a practical book to help those called upon to deal with these injuries". An examination of the text shows that the authors have admirably accomplished their purpose. The pleasurable reading of this compendium from cover to cover has left the reviewer with the impression that the purpose of the authors has been to present to the general practitioner sound essentials of treatment which will ensure to the patient intelligent management of his case. The authors have presented principles of treatment for the more usual types of fractures, those which the general practitioner will most frequently encounter. The purpose of the work is not to deal with the rarer types of fractures. If, however, the general practitioner follows the sound principles of treatment so succinctly presented for the usual case, he will not do any irreparable damage in the management of the unusual case.

The authors of this volume of 280 pages with 161 well-chosen illustrations have so tersely set forth the underlying principles of the treatment of the more common fractures that the work merits a place on the shelves of the library of the medical student during his training, of the general practitioner, and of the outpatient staff of a general hospital. Teachers of fractures may be attracted to the work by its concise presentation. The following quotations are characteristic. In speaking of Colles's fracture, which the authors refer to as the "dinner fork" deformity, they say in conclusion,—"A Colles fracture in a healthy person should leave no disability. Free use of the hand for ordinary purposes may be safely allowed in from three to four weeks, but no heavy work should be undertaken for from six to eight weeks. Thus, a clerk may well resume his occupation in a month, whereas a laboring man will need two months before recommencing digging or other heavy manual work."

And under the unusual condition of myositis ossificans we read,—"If a fracture or a dislocation of the elbow is too roughly handled after reduction, and heavy massage or vigorous passive movements (forced movements) are given, there is a risk of this complication. It will be rare, if the therapeutic measures advocated above (pp. 112-126) be adopted. Rest in the flexed position is the best safeguard against its development."

"Should myositis ossificans develop, absolute fixation of the elbow in flexion for some months is the correct treatment. The position should not be forced, and generally right angle flexion can be obtained, and this is satisfactory position. Only in this way will movement return and the newly formed bone absorb (excellently shown in Figs. 69 a, b, c). Any attempt at the removal of the bony mass, until after the lapse of many months, is useless."

Proctology. A Treatise on the Malformations, Injuries and Diseases of the Rectum, Anus, and Pelvic Colon. By FRANK C. YEOMANS, A.B., M.D., F.A.C.S. 661 pages; 417 illustrations and 4 colored plates. D. Appleton and Company, New York and London, 1929.

An excellent treatise on the diseases of the rectum and pelvic colon taking up in practical detail the many aspects of diagnosis and treatment of both surgical and non-surgical conditions. The book is very well illustrated, many of the illustrations being actual photographs and all of them bringing out clearly the points they are intended to show. About one-third of the book is given over to malignant disease. The operative treatment including electro-surgery, radium, and x-ray are fully taken up.

It is a very complete treatise and can be thoroughly recommended to anyone interested in either general or rectal surgery.

Your Nose, Throat and Ears, Their Health and Care. By L. W. OAKS, M.D., and H. G. MERRILL, M.D. Price $1.50.

An easily read, untechnical book of three chapters, written for the laity, dealing with the functions, abuse and hygiene of the ears, nose and throat.

It fills the need for a concise, well-written, authoritative treatise containing just enough anatomy, physiology, and the preventive measures that every one should know.